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BYZANTINE EGYPT: ECONOMIC STUDIES

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BYZANTINE EGYPT: ECONOMIC STUDIES

BY

ALLAN CHESTER JOHNSON

AND

LOUIS C. WEST

PRINCETON

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PREFACE

NO one has yet attempted an economic study of Byzantine Egypt comparable to the economic studies of the Hellenic world by Rostovtseff or of Ptolemaic Egypt by Miss Preaux. The economic survey of the Roman Empire undertaken under the editorship of Tenney Frank does not go beyond the age of Diocletian. The present volume is the editors' attempt to present the material from literature, papyri, and excavations dealing with Egypt from the age of Diocletian to the Arab conquest. It is realized that no such study can be be definitive or final until the sands of Egypt have yielded up all their hidden treasures, but it is believed that there is already published sufficient material to lay a foundation on which future scholars may build.

At the moment of writing very little of the material published in Europe since the outbreak of the war is available in American libraries. However we have not considered it advisable to delay publication in the belief that little new documentary material has been published during the past seven years.

The present volume lacks certain essential topics. Since agriculture was the most important aspect of the economic life of Egypt, some treatment of the technique of ancient agriculture might have been expected. This subject is treated exhaustively by Schnebel, Die Landwirtschaft im hellenistichen Aegypten (Munich, 1925) and it is not considered necessary to summarize his work. The problems of Egyptian coinage have been discussed by the editors in an earlier work in the Princeton University Studies and except for minor corrections we have nothing further to add on that subject.

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September 10, 1946

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BYZANTINE EGYPT: ECONOMIC STUDIES

I. INTRODUCTION

THIS survey of Byzantine Egypt begins with the year A. D. 297 when the new indiction cycle was inaugurated. If there is any unity in the period from Diocletian to the Arab conquest, it should be found after the reforms inaugurated by Diocletian when the revolt of Achilleus was suppressed.

The source for any study of the economic history of Egypt is primarily the documents found in the papyri. It must be remembered, however, that this evidence comes from isolated districts. For the first hundred years most of the papyri come from villages on the edge of the Fayum (Caranis, Philadelphia, Theadelphia) which were slowly dying. Those from the Nile valley (Oxyrhynchus and Hermopolis) present a more wholesome picture. From the latter part of the fourth century until the reign of Justinian very few documents are preserved, and not more than a dozen can be definitely dated in the whole fifth century. When the curtain lifts once more, our primary source material comes largely from two sites, Aphrodito and Oxyrhynchus, and much of this seems to have been preserved in family archives. In this period few documents bear definite dates and in most cases the dating is based on palaeographical evidence which is not reliable as a criterion except in the hands of highly trained experts. Thus the thousand or more tax receipts and accounts published by Wessely (Kleine Format) can seldom be dated more precisely than the fifth, sixth, or seventh century. Under these conditions it is difficult to determine historical developments of economic processes.

Scientific excavation of Byzantine sites is limited largely to the monasteries which flourished in Egypt. This evidence is supplemented by the histories of monasticism and to some extent by the church historians although the latter are more concerned with the religious controversies which agitated Alexandria. Since the Egyptian bishops embraced the Arian heresy, most of their writings have perished.

The codes of law might be expected to present an authentic picture of the age. The reader of the Theodosian Code, if there is any such, is profoundly impressed by what seems to be the vain struggle of honest and sincere rulers to control the Frankenstein monster of the bureaucracy which they had themselves created to rule the

empire. We seem to see a vast uncontrolled and insatiable political machine preying upon the helpless and hapless provincials. The tenant was bound to the soil and serfdom developed hand in hand with the growth of feudal estates. The artisan was organized in guilds which were not instruments of social reform but organs for the payment of taxes. The ship owners were bound in hereditary succession to their trade and were compelled to serve the state in transporting grain to the imperial capitals at low rates. The great middle class, the curiales or members of the municipal senates, oppressed with ruinous liturgies and obligations to the state, was slowly reduced to the level of the artisan guilds and the members were bound to their order in hereditary succession with ever increasing rigidity. The great landed proprietors were powerful enough to defy the state and to gain more or less immunity from the taxation which pressed with increasing severity on the middle and lower classes. If this picture were the true one, the empire was doomed to swift and inevitable decay. While it is true that the end of Roman supremacy in the western Mediterranean can be dated in A. D. 476, the Byzantine Empire continued to exist for nearly a millenium. Thus the question arises whether legal codes do not present a very biased historical picture and one which has generally prejudiced the historians' judgment of the period.

It should be observed that Egypt was always a peculiar enclave of Mediterranean civilization, in it but never of it. Alexandria never forgot that she had once been the proud capital of the Ptolemies and never accepted the supremacy of Rome or Constantinople politically or ecclesiastically. The peculiar features of Indo-European culture were never deeply rooted in Egypt. The municipal organization was grafted on the temple cities of the nome and with a nucleus of Greek settlers developed a hybrid organization which was more of a bureaucracy than a democracy. The artisan class and the agricultural peasant had followed their profession in hereditary succession from custom and from choice. The organization of industry in guilds was found to be a convenience in the collection of taxes. The Romans found this system and left it undisturbed. They may even have been influenced by Egyptian practice in developing their own legislation.

Since the land was largely in the possession of the crown, Egypt was spared the development of the large estates so characteristic of the west after the development of Rome as a great Mediterranean power. The peasants held their land in a sort of perpetual lease from the state while the small holdings of the Greek settlers were held tenaciously by their descendants for centuries. It is doubtful if the

peasants were bound to the soil by any legal process beyond that of custom, but the Romans developed the principle of origo which seems to be a formal legalizing of custom necessitated because the Roman rulers were apparently more ruthless exploiters of the native population than the Ptolemies. The agricultural picture changes materially in the Byzantine period. Whatever the nature of Diocletian's reforms, he seems to have eliminated the privileged position of the Greek population by equalizing the taxes on land. In the cities the urban proletariat was as free of taxation as the Greek aristocracy. Although it is clear that Diocletian intended to tax the rural population, there is no evidence that this class was subject to a poll-tax, although special assessments were levied from the villages as well as from the cities. But in equalizing the tax on land, the necessity of maintaining the old classifications of crown, hieratic, usiac and other lands disappeared. Constantine or his immediate successors took this step and hereafter the peasant became the " possessor " of the land which he had formerly held in perpetual lease. However restricted this possession may have been, and the right of sale to any but his fellow villagers may have been one of the restrictions, the peasant of the Byzantine period acquired new dignity and importance.

The growth of the great estate in Egypt seems to have begun not through capitalistic investment but by patronage. A series of constitutions from Constantius to Theodosius seems to be devoted especially to patronage in Egypt and evidently the emperors fought this development vigorously. The appointment of three commissioners to examine into all titles thus acquired is strangely reminiscent of the days of the Gracchi. Although the commission was dissolved by Theodosius in A. D. 416, it is not necessary to assume that its work was a failure. However the weakness of the central government in the fifth century seems to have enabled the concentration of property in a few instances. The landed proprietor (γεοῦχος) is well established by the sixth century but there is little evidence for determining the size of any estate. The largest estate at Oxyrhynchus is probably that of the Apion family. Whether their holdings represent actual ownership or large leaseholds it is impossible to say. The tenants on the estate borrowed money or grain from the proprietor, received grants for the repair of machinery or the purchase of cattle and in years of good floods were allowed generous rebates. It may be that these were loans in disguise tending to reduce the tenant to serfdom but actual evidence for serfdom in the Byzantine age cannot be found in the papyri. The abolition of the crown land in the early

fourth century seems to have resulted in the emancipation of the serf; and the renascence of the native Egyptian language, art and culture is one of the characteristics of the Byzantine age.

While Egypt followed the Arian theology in general, and so remained outside the pale of the churches of Rome and Constantinople, the development of monasticism was a major contribution to catholicism. This institution was a powerful antidote for the oppression of the bureaucrat. In the Roman period the peasant, overwhelmed with liturgies and taxes had recourse to flight. He " went up " (ἀνακεχώρηκε) from the valley to the heights of the desert and usually became a bandit. In the Byzantine period the Egyptian church was always at odds with the Orthodox civil administration and gave sanctuary which could not be violated with impunity. The anchorite became a saint unless he still preferred to join a robber band. While monasticism may have been fostered by oppression it is doubtful if more than a quarter of one percent of the male population took advantage of this protection, and when they did it was probably more from a sense of religious conviction than from economic necessity. Nor did the monastic institutions, however indifferent they may have been to cleanliness, give any countenance to idleness. They became industrial centres of considerable importance and some of them attained great wealth.

The interpretation of evidence is always more or less subjective. In spite of the general pessimism which characterizes most studies of the Byzantine period and in spite of the fact that isolated documents can be cited to establish this point of view, we believe that Byzantine Egypt was the scene of important social and economic movements. Industry was as highly specialized as ever, the peasant in the villages enjoyed greater freedom and security, even although oppression by the tax collectors was a perennial source of complaint. The country was prosperous except for some villages on the edge of the Fayum oasis abandoned because the canals on the higher levels had been allowed to silt up. But the fertility of the soil was renewed annually by the bounty of the Nile while that of other provinces suffered exhaustion. The Arab historians who claim that Byzantium drew twenty million dinars annually from Egypt cannot be believed, but even if this amount is divided by ten and we estimate the annual tribute at two million solidi, the wealth of Egypt according to ancient standards is obvious. In effect the Byzantine age marks for Egypt a vigorous growth of Coptic art and culture which, had it not been overwhelmed by the Arab invasion, might easily have set the pattern for a vigorous Byzantine civilization of vital significance in the history of the Mediterranean world.

II. THE LAND

1. IRRIGATION

THE regulation of the flood waters of the Nile required an elaborate system of settling basins so that the fertilizing silt might be deposited evenly over the whole area of arable land. To supply these basins and to carry off the water after it had deposited its sediment a complicated system of feeder and drainage canals was constructed. Thus a bird's-eye view of the Nile Valley would resemble a vast checker board with basins of varying size and shape with a thread of water channels all adapted to the contour of the plain. The development and organization of this system entailed a highly trained corps of engineers, an elaborate bureaucracy and a centralized authoritarian government. The dykes enclosing the basins must be sufficiently strong to contain the waters of a high Nile and required constant care during the flood season. The feeder canals were a still greater care. The winding banks were constantly in danger of erosion from the swift current. These could be protected by the roots of the persea tree which was planted along the banks, and a heavy fine was imposed if any of these trees were cut down without authorization. Stone work was required for weirs and sluices and sometimes along the banks the current was diverted by rows of stakes or stone abutments. The greatest problem, however, was to keep the channels clear of silt. Wherever the current was slow or stagnant the channel tended to fill up, and the evil was aggravated once the level of the floor began to rise. The cleaning of the canals was undoubtedly the chief concern of the engineers and their greatest expense. The taxes collected for this purpose by the Romans were by no means sufficient and forced labor was doubtless required to supplement the assessments for the naubia.[1]

In the general anarchy of the third century of the Christian era, the central authority was weakened. While there are few records for the period, it seems that the villages on the border of the Fayum oasis suffered from a lack of sufficient water. There are no papyri from Socnopaei Nesus after A. D. 220 and none from Tebtynis after

[1] The best account of the irrigation system of the Nile Valley before the introduction of perennial irrigation may be found in Barois, Irrigation in Egypt (Translation by A. M. Miller). Schnebel (Die Landwirtschaft im hellenistischen Ägypten) gives the evidence from papyri. See Economic Survey, II, 7ff.

A. D. 266. Probus is said to have put his army to work draining marshes and clearing canals; and the archaeological evidence shows that there was a temporary revival in some of the villages on the border of the oasis during the fourth century.[2]

Whether Diocletian continued the work of Probus is unknown. He came to Egypt to suppress the revolt of Achilleus and instituted reforms some of which, Eutropius says, lasted to his day. If he was responsible for the division of Egypt into three separate provinces, this decentralization of the power once held by the prefect must have had no good effect on the maintenance of the irrigation system as an effective unit. Possibly the creation of Egypt as a separate diocese *ca.* A. D. 380 was designed to remedy this situation.[3]

Some indirect evidence shows that Diocletian was interested in irrigation. The study of the land declarations from the Fayum in the indiction cycle which he instituted indicates a careful survey, and the reclaiming of abandoned land. Whether this was due to unusually high floods or to extensive clearing of canals it is impossible to say.[4] A document from Oxyrhynchus shows that the strategus was charged with the responsibility for the work and that any complaints went directly to the prefect. The estimate of necessary earthwork was made by a surveyor (*γεωμέτρης*). The foreman (*χωματεπίκτης*) requisitioned the necessary labor from the villages through the comarchs. In some districts the beach-guards prepared the lists of workmen. The finished work was surveyed by an aide (*βοηθός*) of the strategus. In this particular case the aide had credited the village for 100 naubia out of 250 assigned to it and evidently proposed to make an assessment for the 150 naubia, ostensibly to be spent for labor to be hired from another village but really to enrich the official.[5]

Some ostraca from Caranis which cannot be dated more precisely than the late third or early fourth century indicate that two naubia were dug by the men whose names were recorded. Apparently they worked in gangs of ten under a head man (*κεφαλαιωτής*). Other ostraca in this collection, also undated, refer to stone work as well as to cleaning the canals (*ἀφυλισμός*).[6] While there is no definite

[2] Boak, Geographical Review, xvi (1926), 353ff.

[3] Wilcken, Grundzüge, 72ff.

[4] See p. 13, Lewis, JEA. xxix (1943), 71f.

[5] P.O. 1469, cf. PSI. 460. The condemnation of public works had a long history in the practice of graft. Thus Cicero accused Fonteius of condemning road work in Gaul, and Verres as praetor condemned repairs to the temple of Castor.

[6] O. Mich. 266-9. Youtie (TAPA. lxxi [1940], 623f.) publishes ostraca dealing with stone work and cleaning (*ἀφυλισμός*).

proof of the requirement of five days' labor or the requisition of donkeys there was evidently an assessment per capita and perhaps on property as well. Thus a private letter apparently belonging to the fourth century mentions the assessment of the naubia on the caput and property (ἐμβολὴ τῶν ναυβίων τῆς κεφαλῆς αὐτοῦ καὶ τῶν αὐτοῦ).[7] Another document which is probably not later than A. D. 350 gives a list of payments for arrears of naubia.[8] The sums range from 880 dr. to 22 talents and the wide range seems to indicate that these assessments were based on property. Some ratio between naubia and embankments seems to be implied in a register from Theadelphia but the fragmentary character of the document leaves the interpretation uncertain.[9]

The water-guards of the village were nominated by the comarchs in the fourth century.[10] Their duties were presumably limited to the flood-season when they kept watch on the flood gates to prevent diversion of the flood from their district. Theadelphia, for example, seems to have had lands at high levels or supplied by a subsidiary canal. The villagers protested that they did not receive sufficient water and petitioned for the right to move to a more favorable location.[11]

Diocletian may have inaugurated special work on the canal known as Trajan's River. Thus Caranis furnished a workman who received 200 dr. per day and keep for a period of two months. This was not the regular corvée, but the nature of the work is unknown.[12]

The revival of the villages in the fourth century seems to be temporary. Documents from Theadelphia disappear after A. D. 350 and nothing is known of Philadelphia after A. D. 386.[13] How much this evidence is worth is problematical. From the archaeological evidence at Caranis Boak believed that the village became desolate by the middle of the fifth century, but no papyri from that site have been published dating later than the first quarter of the fourth century.

After A. D. 350 the papyrological evidence comes mainly from Oxyrhynchus, Hermopolis and Antaeopolis (with Aphrodito). In A. D. 359 an assessment of 73 myriad denarii was levied at Oxy-

[7] Wilcken, Chrest. 390.
[8] P. Gen. 65. The cost of a naubion is given in A. D. 314 as 1300 dr. (PER. E. 2000).
[9] P. Thead. 53.
[10] P. Lond. 1246-8 (A. D. 345); P. Cairo Pr. 15-16.
[11] P. Thead. 20. See also *ibid.* 14, 16.
[12] SB. 7676 (A. D. 297).
[13] P. Geneva 69 (A. D. 386) seems to be the latest datable document from this village. The difficulties of the villagers may be seen from their petition of A. D. 359 (BGU. 909).

rhynchus for the Alexandrian Canal. This was apparently a special assessment and was said to be per capita, but probably only on property owners.[14]

From Hermopolis a document of A. D. 373 gives us our only information of procedure in that nome.[15] The general oversight of the irrigation seems to be under the riparii. At least the irenarch of the village sent to the riparii nominations for the liturgies of oversight of embankments (ἐγβολεῖς χωμάτων), a secretary (χωματογραμματεύς), a surveyor (ξυλομέτρης), distributor of work (ἐργοδότης), and a guard of the public road. The latter functionary probably served as a guard of the canals since the roads usually followed the canal banks.

The evidence for the fifth century is very meagre. A constitution of Theodosius in A. D. 409 dealt with stealing water by breaking the embankments before the flood had reached the height of 12 cubits.[16] A constitution of A. D. 415 forbade the logographi chomatum to attempt to escape their public duties under the shelter of some patron.[17] The logographi are otherwise unknown. Some work on Trajan's River was undertaken again in A. D. 424 and workmen were requisitioned from Oxyrhynchus. The task was regarded as a liturgy even though pay seems to have been provided, but an oath was evidently exacted that they would remain on the job for three months.[18]

We may mention here a constitution of A. D. 436 where the guilds (corporati) of Alexandria were released from the liturgy of clearing the river and the emperor ordered that the sum of 400 solidi should be appropriated for this purpose from the tax of two nummi, and this amount should later be repaid from a shipping tax (ex titulo navium). This apparently was not a work of irrigation but rather for the city water supply.[19]

Two other documents ascribed to the fifth century add very little to our knowledge. The aide of embankments (βοηθὸς χωμάτων) acknowledged the receipt of money for wages and for the throwing up of a public embankment in the Hermopolite nome.[20] This money

[14] SB. 7756. This may be an assessment for the water system of Alexandria. See *infra*.

[15] P. Lond. 1648.

[16] C. Th. ix. 32 (C. J. ix. 38).

[17] C. Th. xi. 24. 6. Wilcken suggests that C. Th. xv. 3. 4. (A. D. 412) dealt with Egyptian dykes, but this was addressed to the governor of Bithynia and probably refers to the causeways of public roads.

[18] PSI. 689 (A. D. 424). See also PSI. 87.

[19] C. J. xi. 29. 1. Similarly the assessment in P. Hamb. 56 is probably for a local water supply. Theophanes (Chronographia I. 115, 6), says that a canal was dug in A. D. 459 from Chaereas to Kopron, presumably to facilitate shipping of grain.

[20] P. Flor. 346. See also Rouillard, Mélanges Desrousseaux, 417 for a payment by a

was paid by the comarchs and gnoster and may either represent an assessment made on the village or a commutation for the corvée. Another receipt was given by an overseer (ἐπιμελητής) to the village of Apollon for two solidi for embankments and incense (sic) ὑπὲρ χωμάτων καὶ λιβάνου. The collocation of these two items is somewhat incongruous and if the reading is correct it is probable that λίβανος does not bear its usual meaning.[21]

For the sixth century our information is limited to the accounts of estates. Apion at Oxyrhynchus seems to have employed his own overseer of embankments (χωματεπίκτης) who assessed and collected from tenants the necessary funds. There is no indication of forced labor and the pay for excavating 50 naubia was one solidus. Villages were also assessed for a share of the expenses and once the protocometae contributed for repairs to a canal.[22] The estate employed river men and the pronoetae enter their wages as a part of the expenses. The amount is usually very small and if it is to be regarded as a tax, it is at a very low rate; nor does it appear in all accounts.[23]

In the sixth century the name applied to farms is frequently μηχαναί. The term probably implies that the property was equipped with a sakiyeh, and did not depend for irrigation on the flood. Frequently in a lease of land the property is described as ἄνυδρος. This term is properly explained by Zereteli as a property which was not equipped with a cistern and sakiyeh of its own but was dependent on others for its water supply.[24] While the embankments were still used,—and Apion not unfrequently made rebates to tenants for lands damaged by the breaking of the dykes,—the increasing use of μηχαναί may indicate that the flood system was being displaced by perennial irrigation.

The weakness of the central government in the control of the distribution of water is evident in this period. Although Justinian incorporated in his code the constitution of A. D. 416 regarding the penalty for stealing water or breaking down the dykes before the flood had reached the twelve-cubit mark, the evil was not remedied. When the pagarch of Antaeopolis was accused of closing the canal which supplied Aphrodito, presumably diverting the water for his

magister for the dykes of Tentyra made in accordance with the πρόσταγμα for the 15th indiction.

[21] P. Rend. Harr. 78 (A. D. 452).

[22] P.O. 1053, 1917, 1929, 1939, 2032, 2034-5, 2205-6.

[23] Gelzer (Studien) regarded the pronoetes as a tax collector and his accounts were therefore the taxes collected by the estates. If this view is correct, the amounts paid out to the rivermen may be regarded as payments of taxes. But this is very questionable.

[24] PRG. iii, p. 247.

own district, the peasant was helpless.[25] The liturgy of water guard becomes a serious business and the nomination of ten men to this post for a single village is some indication of the importance of the post.[26] When it is said that villages fought bitterly over the division of the waters the story is credible.[27] The description of land in leases of the period not infrequently states that the property was under the protection of such and such village. While this may mean that the village was powerful enough to protect the crops from bandits, it probably implies that the village was able to secure a proper division of water at flood seasons.

Nothing is known of the corvée in the sixth century but its existence may be implied. According to the Arab historian of the conquest of Egypt, 'Amr employed 120,000 laborers winter and summer for the upkeep of canals.[28] While no reliance can be placed on the accuracy of this account, there is little doubt that the Arabs learned all they knew about irrigation from their predecessors and took over their system. In spite of the lack of evidence, it is probable that the forced requisition of the Egyptian peasant for work on canals and embankments has a continuous history from Pharaonic times to the institution of perennial irrigation and the building of the Assuan dam.[29]

Whether the ancients attempted to build barrages across the Nile is unknown. Grenfell and Hunt suggest the possibility at Oxyrhynchus.[30]

Good floods are reported in A. D. 285-6, 287-9, 290, 292, three between 292-304, in 305 or 306, at the end of the fourth century, and in the sixth.[31] Poor floods are seldom recorded but plague and famine usually followed and from the account of these we may infer the failure of the harvest.[32] In the farm accounts, the rebates to tenants,

[25] P. Cairo 67002 (A. D. 552).

[26] P. Lond. 1246-8.

[27] Life of St. Anthony (Budge's translation, p. 201).

[28] Futûh Miṣr of 'Abd- al-Hakam, 151.

[29] For the cost of keeping up the irrigation system in the last century, see Economic Survey ii, 7ff. The protest of a woman against the drafting of her tenants (CPR. 233) may be a case of drafting for work on the canals.

[30] P.O. 1830. This document indicates the interest of the landed proprietors in the daily rise of the flood. This was reported to the chartularius who kept the schedule of rents on the estate.

[31] SB. 991, 6597-6609; P. Aberdeen 18; P.O. 1830. Whether the famine which Julian faced at Antioch in the summer of A. D. 362 was aggravated by conditions in Egypt is difficult to say. Probably his failure to cope with the situation may have been due to the impossibility of securing sufficient grain from Egypt. In the year A. D. 370 Symmachus (Or. 11, 23) speaks of a flood enriching the thirsty land of Canopus and Memphis.

[32] A famine under Pachomius (d. ca. A. D. 346) and another under Hieronymus (d.

if unusually large, were undoubtedly due to failure of the flood.[33] The fluctuation in the price of cereals cannot always be regarded as an index, for these varied according to the season, and when there was an adaeratio on the part of the government prices did not necessarily correspond to market values.[34]

2. LAND DECLARATIONS

In A. D. 297 the revolt of Achilleus was already suppressed under the direct command of Diocletian. In March 16 the emperor issued an edict through his governor establishing new taxes on land; and in this year was established the five-year indiction cycle.[1] A census of all Egypt was proclaimed and censitores were appointed.

The earliest declarations under the new system are dated A. D. 298, one of them coming from Caranis, the other from Theadelphia.[2] Both were made under oath, and in both the statement is made that the declarer "possessed" (κεκτῆσθαι) in the one case, 24 olive trees on private land; in the other, 2 arouras of private land under cultivation. Both declarations were made in Choiak or long after the flood had subsided. Presumably both pieces of property lay well within the irrigated belt and no check on the declarations was necessary.

A different type of declaration is found at Caranis in A. D. 299.[3] Whether the property was private or crown land or both the declarer used the words κτῆσις or κεκτῆσθαι to describe his relation to the property. The declarations, all presumably made on Thoth 14 or when the flood was at its height, were attested by three surveyors, three juratores, evidently senators of Arsinoe who held this office as a municipal liturgy, the assistant of the decaproti of the toparchy, and the horiodictes. This multiplicity of officials shows clearly the

A. D. 420) indicate a failure of the flood which cannot be dated precisely (Budge, pp. 393, 458). Sozomen (Hist. Eccl. vii. 20) says that after the destruction of the pagan temples the Nile flood was unusually late and when it came it threatened to submerge Alexandria. Eutychius reports famine and plague under Anastasius (Ann. p. 1062, Migne). Malalas (xviii. 224) mentions a plague in the fifth year of some indiction under Justinian. Whether this was connected with the famine in Constantinople (xviii. 232) is unknown. There was a poor flood ca. A. D. 570 (P. Lond. 1674) and again in A. D. 611 (Life of John the Almoner c. 13). Whether the latter is related to the plague in Alexandria (*ibid.* c. 27) and the failure of the Nile (*ibid.*, c. 30) cannot be determined.

[33] See for example P. Baden 97 and P.O. 2195.

[34] For prices of cereals see Appendix. In general prices throughout the sixth century when based on gold held fairly steady whether they were fixed by the government or not.

[1] Boak, Ét. de Pap. ii, 4 (SB. 7622); Kase, Papyrus Roll, p. 24ff.

[2] SB. 7623 (Caranis); P. Cornell 19 (Theadelphia).

[3] SB. 7669-72.

growth of bureaucracy. Although it is evident that these various officials were supposed to serve as a check on one another, a petition of this period shows that corrupt practices were by no means eliminated.[4]

In these declarations the use of the word " possession " (κτῆσις or κεκτῆσθαι) describes the relation of the declarant to the property whether the land is classified as private or crown property. There is no mention of *epibole* of the crown land and it is unknown whether this right of " possessio " is due to forced assignment or to voluntary lease. The declaration is careful to state whether the land was under cultivation (σπορᾶς, σπορημός, σπαρίσης) or unflooded (ἄβροχος). When the land is called σπορᾶς (σπαρίσης) the declarer always stated the year, usually two, sometimes three years before the date of the declaration.[5] Evidently the land was entered in the register of taxes for that year but presumably had not been cultivated since that time. When the declarer uses σπορημός, there is no date specified but it is dangerous to make any assumptions as to whether the land had been arable in previous years or not.

It is probable that these declarations deal with marginal lands which were surveyed at the height of the flood. Whether the bringing of additional land under cultivation is to be ascribed to improvement of the irrigation system or to unusual flood conditions it is impossible to say. There is no clear evidence that Diocletian continued the work of Probus, but he may very well have done so. There were three good floods between A. D. 297-305 and these may have come in the years 297, 299 and 302 when the declarations state that the land was under cultivation.[6]

A declaration from Dionysias, evidently found at Theadelphia, belongs to the same imperial year as the Caranis documents but in the next calendar year (Tybi 18) or long after the flood had subsided.[7] This declaration was signed by the same group of surveyors and juratores as officiated at Caranis on Thoth 14. Presumably the force which Sabinus had at his disposal was limited and these began their survey at the eastern edge of the lake and worked around the marginal lands of the Fayum reaching Dionysias and Theadelphia some four months later. This implies, though it does not prove, that the surveyors worked around the rim of the desert and examined

[4] P. Amh. 83. This petition made by senators of Arsinoe, seems to lay the blame for falsification on the horiodictes acting in collusion with the juratores.

[5] See Lewis, JEA. xxix (1943), 71ff.

[6] See p. 12.

[7] P. Thead. 54 (republished with corrections in Ét. de Pap. III, 18.

marginal lands. At least this would explain why the declaration at Dionysias is so long after the flood season. The land at Dionysias was crown property, and in this case it is definitely stated to be an *epibole*, though there is no evidence that the declarer owned private property in this village. However the declarer states his relationship as possession (*κεκτῆσθαι*).[8] Like the Caranis documents, one plot of crown land is said to be of the sowing of the 14th year, the other of the sowing of the 13th year. The other declaration, presumably from Theadelphia (or Dionysias) and probably dated the same day and year, is in form identical with P. Thead. 54 except that one aroura of land, called "ownerless" (*ἀδέσποτος*) seems to appear in the summary as crown land. Another parcel of crown land of 25/32 ar. is said to be an *epibole* of the 14th year. Here the omission of *σπορᾶς* may be accidental.[9]

From Hermopolis there are two declarations from this first indiction cycle.[10] These are of private land said to be capable of cultivation and like those from the Fayum of the same year have no subscription by officials.

The two distinct types of declarations require some explanation. Probably the marginal lands on the edge of the desert required an annual survey to determine the areas covered by the flood and subject to taxation. Other lands lying within the irrigated belt were not regularly checked by official surveyors, probably for the reason that the records of these lands were kept in the local bureaus, and resurvey would be unnecessary.

The census of Sabinus was probably not limited to mere surveys of marginal land. There seems to have been some legislation whereby the principle of "possession" was widely applied. The individual declarer of lands officially surveyed states that he "possesses" the land whether it is classified as private or crown land, whether the crown land was forcibly assigned to him by an *epibole* or not. His property is called a *κτῆσις*; and in describing its location, it is bounded by other *κτήσεις*. Similarly the register of land at Theadelphia early in the fourth century is a "village possession" (*κωμητικὴ κτῆσις*), and includes both private and crown land.[11] In this case it is evident that the village "territorium" is the responsibility of the village community and in later times we find land described as under the

[8] Something is lost in the lacunae, but there does not appear to be sufficient room to allow for the restoration of private land with the necessary description of it.

[9] P. Thead. 55 (see note 7).

[10] P. Flor. 32 (A. D. 298); P. Lond. 1647.

[11] P. Princeton 134.

παραφυλακή of such and such village. The classification "crown land" soon disappeared and in the absence of direct information, we must assume that the greater part of it became the corporate responsibility of the village in whose territory it lay, while those parts which had been imposed on private owners as an *epibole* became their private property. The community ownership of the village tended either to pass under the patronage of some powerful person and became his private property, or the villagers themselves in process of time became the virtual owners of the land which their ancestors had held in lease.[12]

It seems that Sabinus and his fellow censitores were vested with certain powers to confer titles of possession. Half a century later contracts of sale in the Fayum state that the title of the vendor was vested by the census of Sabinus.[13] The owners in these contracts, however, say nothing of possession, but claim full ownership (ὑπάρχειν). Whether their "possession" has ripened into "dominium," or whether their lands had always been private property, it is impossible to say. The use of κτῆσις or κτῆμα regarding land tenure can be traced from Diocletian to the end of the Byzantine period.

A new five-year cycle began in A. D. 302 and some changes were made. The census was now authorized by the catholicus. Declarations of land were made not to the censitor, but to the ἀναμετρητής who had supervision of a toparchy.[14] Declarations of marginal lands were attested by three surveyors, the horiodictes, the headman (μείζων) and the comarch of the village. The juratores and the assistant of the decaproti disappear. The title ἀναμετρητής implies a resurvey and probably a resurvey was only required for marginal lands whose taxable areas varied according to the height of the flood. It is of some interest to note the formula of declaration at Hermopolis: ἀπογράφομαι ἀνεκτῆσθαι καὶ ἔχειν καὶ παρειληφέναι κτλ. In the earlier declarations from Hermopolis ἔχειν designated private property.[15] The use of ἀνεκτῆσθαι implies renewal of possession, and may indicate that crown land was assigned for periods of five years and was renewed again in the cycle beginning A. D. 302.

A number of declarations from the second indiction cycle (A. D. 302-307) were preserved in a single roll and evidently came from the archives of New Ptolemais, a village near Caranis and probably also

[12] See p. 94. In P.O. 1905 there is a military assessment on the κωμητικῇ κτήσι (line 23).
[13] BGU. 917, 1049.
[14] In the Fayum there was one official for two toparchies; at Hermopolis two were appointed for each toparchy.
[15] P. Cornell 20 A.

on the rim of the oasis.[16] Since most of the declarations were made by residents of other villages, it is probable that the lands were marginal and had been abandoned when the flood was insufficient to render them arable.[17] These declarations were made at the height of the flood (Thoth 26, A. D. 302) and presumably could not be made earlier or before the height of the flood was known. All state that private property reported as barren in the censorship of Sabinus was now arable and that other lands reported as ownerless were now capable of cultivation and as such had become crown land. The declarer does not state that this land was assigned to him for *epibole*. Presumably an unusually good flood enabled former tenants to return to property which they had owned or held on lease and which had been abandoned. The official survey of reclaimed marginal land was required so that the state could determine the assessment of taxes.

It is quite probable that declarations were required only in the case of marginal lands where the tax could be levied only in years of good floods. Under Diocletian the survey of such land was made with elaborate machinery and it is obviously impossible that all arable land in Egypt could be surveyed annually in the same way. As yet no declarations of land have appeared later than Diocletian.

In A. D. 322 the official surveyor of the Hermopolite nome accompanied by the horiodictes and village gnoster made a survey of the holdings of a resident of Sinape.[18] This was made at the instance of a libellus presented by a senator of Hermopolis and the result was reported to the strategus or exactor of the nome. The reason for the libellus is unknown, possibly some question of liability for local liturgies or evasion of taxes. In this case there is no evidence of any declaration on the part of the owners. The method of treatment of land for purposes of taxation now becomes obscure. The few registers of Hermopolis were presumably drawn up after the abolition of the old classifications of land but none of these is complete and none gives any indication of their author.

In the sixth century Justinian found cause for complaint in the disorder prevailing in the Egyptian diocese so that no one knew the taxes exacted in the rural districts.[19] What steps he took to

[16] P. Cornell 20.

[17] Two of the eleven declarations, and possibly one other, were made by residents of New Ptolemais. Some of the declarations were for crown land only and most of these were made by residents of Arsinoe.

[18] P. Cairo Pr. 8.

[19] Edict xiii. For John as censitor see P. Cairo 67140[2]. A number of other receipts for taxes indicate that payments were made in accordance with his census.

correct this we do not know, but it is quite possible that the appointment of John, the Scholastic, as censitor at Aphrodito may have been a step in bringing order out of confusion.

The *epibole* of land was a common practice in the Roman period, and probably continued until the classifications of crown and hieratic land were abolished. Possibly the last example in the fourth century is a petition from an elderly villager to the governor of the Thebaid to release him from the liturgy of cultivating crown land (ὑπόλογος βασιλικὴ γῆ) on the plea of age.[20] The land register of Hermopolis indicates that citizens cultivated private, public (δημοσία) and municipal (πολιτική) lands, but whether the cultivation was compulsory or not cannot be determined.[21] In the sixth century we find compulsory assignments of public land at Aphrodito, and the estate of Ammonius included an *epibole*.[22] Elsewhere the evidence is slight. At Oxyrhynchus Apion evidently copied the imperial practice, for in some of his accounts the κοινόν of farmers or of vine-workers paid taxes for ἀποτάκτων χωρίων and ἐκτάκτης τρύγης respectively.[23] Apparently the guild was made responsible for abandoned leaseholds in the same way that the corporation of the village was responsible for the taxes on all lands within its jurisdiction.

3. LAND REFORM

The Romans inherited from the Ptolemies a complicated system of taxation, though most of the land was crown property.[1] In the early Empire few changes were made so far as can be determined. Some land was granted by the Julio-Claudians to friends and to members of the imperial household, but in general the emperors followed the Augustan principle of keeping the senatorial class out of Egypt, and this was one province where we never hear of private exploitation by Romans. The imperial grants of land usually found their way back to imperial possession and for these a new category of usiac land was created. This with the crown and hieratic land belonged to the imperial estate, and all was leased to tenants. The area granted to cleruchs and catoeci by the Ptolemies had never been very extensive. These categories were left untouched by the Romans and they constituted the bulk of the private property.

[20] P. Lond. 1827. For the meaning of ὑπόλογος see Roberts and Skeat, Aegyptus xiii (1933), 455.

[21] P. Flor. 71.

[22] A woman claims exemption, P. Cairo 67104. For Dioscurus see P. Cairo 67140[3].

[23] P.O. 2195.

[1] Wilcken, Grundzüge, passim; Econ. Survey II. passim.

Diocletian seems to have simplified the tax structure by establishing a uniform tax or tribute on each aroura but apparently left the old classifications unchanged.[2] The documentary evidence is slight, but the land declarations of the early fourth century and a fragmentary register from Hermopolis reveal the old classifications.[3] A register from Theadelphia dated in the 10th year of the indiction is not earlier than A. D. 322 and probably not later than this date.[4] Perhaps the last mention of crown land as imperial property is A. D. 332 where the officials of Theadelphia complain of the flight of villagers, some of whom had taken leases of crown land at Oxyrhynchus.[5] The sale of crown land in A. D. 362 is a transaction between individuals, thus indicating that the property in question had passed out of the state control.[6] Sacred land is found at Hermopolis. Usiac land was the subject of sale in A. D. 330.[7] Catoecic land persisted into the fourth century but whether κλῆροι always refer to cleruchies may be questioned.[8]

From this survey of the scant evidence preserved it would appear that the crown land, which constituted the great bulk of the arable land in Egypt through the early period, was still maintained as a separate classification at least until A. D. 332. A register from Hermopolis, which from the prosopographical evidence seems to belong between A. D. 332-350, gives the holdings of all citizens living in the West Garrison and of Antinoopolitans holding property in the Hermopolite nome. Another register dated by the editors in the fourth or fifth century is probably more or less contemporary.[9] In these registers the crown, hieratic, and usiac lands have completely disappeared. The only important classification is private property

[2] See Taxation on Land.

[3] See Land Declarations. Registers of land: P. Flor. 64; SPP. X. 221; PRG. v. 58.

[4] P. Princeton 134.

[5] P. Thead. 17.

[6] SB. 6612.

[7] Some sacred land is recorded in P. Flor. 64. Usiac land was the subject of sale in A. D. 330 (CPR. 19). The οὐσία Οὐλπιανή and Πλατωνική (Πλωτινική?) of P. Flor. 71 are registered as private property among the possessions of Antinoopolitans. These may be survivals of the original endowments by Hadrian to the city. Similarly the οὐσία στάβλου may represent an endowment for races. At any rate these properties are not parts of the old usiac land.

[8] Catoecic land: P. Leipz. 6 (A. D. 306); CPR. 10 (A. D. 321). See Wilcken, *op. cit.*, p. 315. The κλῆρος of Nicanor is mentioned in P. Princeton 119, and several κλῆροι were included in the estate of ex-procurators in Upper Egypt (P. Leipz. 97). These are not necessarily cleruchic land.

[9] P. Flor. 71; P. Leipz. 101. The Leipzig document has on the average holdings of small size. The average size of holding in the Florence document is about 40 ar. The largest holding is about 1000 ar. The prosopographical evidence: Demetria (lessee Eus, C.P.R. 19 (A. D. 330); Aurelia Charite P. Cairo Pr. 39 (A. D. 347), SPP. XX. 98 (A. D. 348).

(ca. 17,000 ar.) with about 1450 ar. public land and a small amount of γῆ πολιτική which is sometimes called private. This is probably land belonging to the city of Alexandria which was the city par excellence in official documents. In the Leipzig register there is a small area called the οὐσία ταμιακή and one called the οὐσία Ἑρμοπολιτική but both are listed as private property.

Since crown land never appears in the fifth and sixth centuries it seems clear that this classification disappeared; and if we may judge from the Hermopolis registers this reform was put into effect between A. D. 332-350 either by Constantine or by his immediate successors. If Diocletian instituted uniformity in the taxation of arable land, the maintenance of a complicated classification was no longer necessary. Diocletian does not seem to have taken this step but he may have been responsible for giving the villages greater responsibility for the land within their territory. The Theadelphia register of A. D. 322 (?) describes both crown and private land as the village possession (κωμητικὴ κτῆσις) and when the crown land disappeared from the record it would seem that the tenants of this land became the "possessors." [10] For citizens of Hermopolis and Antinoopolis the land had become private property. In the villages the same procedure seems to have been followed.

It is not likely that this sweeping reform was designed as social legislation, although the crown tenants (δημόσιοι γεωργοί), who had lived in a semi-feudal status, now disappear completely.[11] In practice however the villager was bound to his village to cultivate the land which his ancestors before him had always cultivated.[12] Later legislation forbade the sale of land to an alien and he could sell it only to a fellow villager.[13] Thus the village became a close corporation, a κοινόν of farmers who seem to be responsible for the cultivation of all arable land in the territorium, if not for the taxes. Moreover this reform deprived the Greek population of their privileged position in regard to taxation. The generations following are marked by the steady decline of Greek culture and influence, while the peasant, endowed with new dignity and power due to the right of possessing his land, revived his ancient culture; and in the sixth century the names of many important men, such, for example, as Apion, indicate their native Egyptian origin.

[10] SB. 7675 (A.D. 313); 8019 (A.D. 325); P. Princeton 119. For "possession" see Land Declarations where the holder of crown land in villages declares his "possession."

[11] See p. 94.

[12] P. Lond. 1827: τοῖς τῆς κωμῆς προσιέναι ἄρρεσι γεωργίας ὑπολόγου βασ[ιλικῆς].

[13] C. J. xi. 56 (A.D. 468).

While the bulk of the land was absorbed in private possession, the imperial patrimonium apparently did not absorb the usiac land, but this too became private property. However the res privata grew again as a result of fines, confiscations and the like. In the sixth century the "divine house" at Oxyrhynchus owned considerable property.[14]

In addition to private land, and a certain amount of γῆ πολιτική, there was a considerable area called γῆ δημοσία at Hermopolis. This lay mostly in the 6th, 8th, and 15th pagi. This classification was also found in the Roman period, but it is seldom possible to determine its nature. At Socnopaei Nesus the beach lands were cultivated under favorable conditions of the flood and were described as public. There is no evidence for determining its character at Hermopolis in the fourth century. Some citizens held large areas, some held none at all, and a few had only public land. If it was assigned for forced cultivation the evidence implies that the imposition was extremely arbitrary. This register also lists about 2200 ar. as of or in such and such pagus without giving any description of the land. Whether this was due to carelessness on the part of the scribe or whether the land was actually regarded as the property of the pagus cannot be determined. Most of this land lay in the same pagi as the public land. There is no other evidence that the pagi owned land of their own. In the sixth century there is some reference to public land on the estate of Apion, but evidently the amount was small.[15]

Marginal lands seem to have been handled in different ways. Land which was completely abandoned was called ownerless (ἀδέσποτος) In the Fayum this land was reclaimed by the state when there was a good flood and it became capable of cultivation. This could be leased voluntarily or assigned for compulsory tenancy.[16] Procopius believed that this was an innovation of Justinian whereby he brought ruin to many prosperous farmers, but this had been the normal practice in Egypt since early in Roman rule.[17] Another classification of marginal land seems to be ἐν τῷ ἀπόρῳ (ἀπὸ ἀπόρων ὀνομάτων). This appears first in A. D. 323/4 probably as an assessment to make up deficiencies on marginal lands within the village territorium.[18] This land was leased at Philadelphia by the village authorities and at Aphroditopolis seems to belong to the city.[19] In the sixth century this category might be leased voluntarily or assigned for compulsory

[14] See Imperial Estates.
[15] P.O. 2019, 2195.
[16] See Land Declarations.
[17] Anecdota, 23, 15-17.
[18] Kase, Papyrus Roll, xiv.
[19] P. Gen. 66-7; 69-70 for Philadelphia. Aphroditopolis in P.O. 1746.

cultivation. In general it was subject to special taxation; and in a division of an estate the heirs sought to have part, apparently land lying above flood levels, transferred to this category without success.[20]

The emperors granted lands to favorites or veterans but the evidence for such grants in Egypt is scanty. The *dorea* of Protamus at Hermopolis was apparently given some privileges in taxation and these probably varied according to the grant and to the extent of imperial generosity.[21] At Oxyrhynchus we find record of land called the fourth share (*τεταρτομοιρίας*).[22] This is probably not a survival of Ptolemaic classifications if all these were abolished by the land reform. But the nature of this class in the fifth and sixth century is unknown. It may represent some grant of imperial estate which permitted the grantee or possibly the tax collector to exact a fourth of the produce from tenants.

The retention of the great bulk of arable land as the property of the crown had prevented the growth of the great estate in Egypt. When the crown released its control of this area the way was open for private capital to invest in Egyptian land and to build up the latifundia. This development seems to have been fought by the imperial government with some success.[23] Whether the Augustan doctrine forbidding senators to visit Egypt without permission still held good it is impossible to say, but the chief landowners of the sixth century seem to be native Egyptians if such names as Apion, Menas, and Horapollon are any indication. The estate of Olybrius in Upper Egypt may belong to a consular family but of this there can be no certainty.

Soon after the reform, the emperors were faced with the problem of patronage.[24] Members of the imperial bureaucracy gave protection to individuals or to whole groups and in this way secured

[20] Ownerless land cultivated by Ammonius (P. Cairo 67140[2]). See Pagus and Village for *ἐν τῷ ἀπόρῳ*.

[21] See Estates.

[22] P. Flor. 325 (A.D. 488); P.O. 1910. In the former the land leased is described as coming to the owner by "grant" to Serenus of blessed memory (*περιελθόντων εἰς τὸν λόγον ἐκ δικαίου τεταρτομοιρίας τοῦ τῆς λαμπρᾶς μνήμης Σερήνου*. On the estate of Apion there are frequent references to land called the *δίκαιον* of so and so. These may be parts of original grants by the emperor.

[23] C. Th. xi. 24. 1-6. These laws were not repeated by Justinian and we may infer that the evil was ended, though the view that the emperors had succumbed might also be held. But Justinian did include Constitutions dealing with the coloni in Illyricum, Thrace and Palestine (C. J. xi. 51-53). Members of the bureaucracy were forbidden to acquire property in a province if they were not natives of the province. In the sixth century the bureaucracy of Egypt seems to have been recruited locally and this legislation was of no practical value. (C. Th. viii. 8, 9; viii. 15, 1-8). For this reason Justinian incorporated none of it in his Code.

[24] See Coloni.

control of their property. This development was attacked by a series of constitutions which apparently dealt with Egyptian conditions. Most students of Egyptian history take it for granted that the legislation was futile and that the Egyptian peasant continued in serfdom under the control of proprietors of great estates similar to the Western baronial manors.[25] But it seems questionable whether conditions in the western empire applied to the East and whether the imperial constitutions did fail. It is true that Theodosius terminated the activities of the special commission appointed to deal with the problem of patronage and permitted all such titles acquired before A. D. 398 to be valid, but it is probable that many of those titles had already been quashed by the commission, and it may be questioned whether, in the half century since the land reform, much of the land had been absorbed in great estates. There is no question that there were a few great estates in the sixth century but except for that of Apion our evidence is slight. Above all the question of serfdom needs to be reëxamined. We have shown elsewhere that the ἐναπόγραφοι γεωργοί on Apion's estate have little in common with the human chattels of the Western empire. And if Aphrodito and Spania are representative of the villages in the Nile valley, their inhabitants in the sixth century represent a culture that is by no means inferior to that of similar villages of the twentieth century.

4. THE COLONI

The status of the agricultural peasant on the crown property of the Ptolemies has been described as semi-feudal. This seems to mean that the peasant was liable to the liturgies of cultivating the land, when and if there was a lack of voluntary tenants, and to the annual work on canals and embankments required for the proper flooding of the land. There is no evidence that he was bound to the soil. While the Ptolemies controlled his agricultural activities in minute detail, the Roman government was more concerned in the annual tribute to Rome and there is little evidence of their control of other crops or of the continuance of Ptolemaic monopolies. However in the exaction of the capitation tax, the peasant was registered in his native village and was required to pay it there.[1]

[25] Zulueta, de patrociniis vicorum; Rouillard, L'administration civile de l'Égypte byzantine; Bell, The Byzantine Servile State, JEA. iv (1917), 86ff.

[1] The evidence for the colonate in Graeco-Roman Egypt is collected by Rostovtseff (Rostowzew), Studien zur Geschichte des römischen Kolonates. A good summary of earlier theories is given by Clausing, The Roman Colonate, New York, 1925.

Since wages were low and labor abundant, slavery was uneconomic in cereal culture and on small holdings. While it is possible that contractors took large areas of state property in lease, the records of large estates are rare in Roman times and it is usually impossible to determine whether παιδία are slaves or boys unless actual wages are specified. In general, however, slave labor was rarely used in agriculture.

The peasant remained in his native village as a matter of habit and personal inclination. His opportunity for making a living elsewhere was limited. After Alexandria was founded her varied industries required abundant labor, but her industrial development had probably reached its peak in the first century of the Empire. After this time there is no evidence that the urban movement continued. Probably by this time the rural population had become more or less static. While little trust can be placed in reported figures for the census of Egypt, the estimate given by Josephus for the reign of Nero, by the historians of the Arab conquest, and by the first modern census of 1881 indicate a static population. One way of reducing the excess population was by exposure of infants. A low Nile brought famine which was usually attended by plague and high mortality rates. The few census lists preserved indicate that the peasant was at best shortlived. Thus it is probable that the normal requirements of agricultural labor for the village lands were provided locally. In a few cases the transfer of villagers from one district to another seems to be due to special conditions which are never clearly defined. Probably certain areas may have been affected by silting up of waterways or failure of embankments while unusual flood conditions had improved conditions in other areas.

The flight of villagers (ἀναχώρησις) in the Roman period affords some proof that the peasant was not yet bound to the soil. Philo Judaeus tells the tale of a collector (ἐγλογεὺς φόρων) who caused the flight of certain peasants because of debts and suggests that whole villages and cities were abandoned because of cruel exactions.[2] The latter statement is evidently an exaggeration. Tiberius instructed his prefect that he preferred to shear his flock rather than flay them alive, and imperial policy was hardly so shortsighted as to condone the desolation of cities and villages which would have brought about a permanent loss of tribute not only in money but also in kind. Whatever value may be given to the evidence of Philo, the flight of villagers from the poll-tax led the imperial authorities

[2] De spec. legibus iii. 30 (159). While the ἐγλογεύς is not known in Egyptian documents of the period, it is probable that Philo was referring to Egyptian conditions.

to devise a remedy by imposing an assessment for the defaulters on the members of the community who remained. In the second century Wallace has shown that the rate of this assessment in certain villages indicates a serious loss in population, but it may be doubted whether this condition was universal.[3] Thus if half the population abandoned the cultivation of the land and took to brigandage, we should naturally expect serious economic crises for which evidence is totally lacking. The cultivation of abandoned land was provided for by *epibole*, whereby crown land was assigned to private owners who were made responsible for the taxes in kind, but this procedure had its limitations and obviously could not be used where private ownership was non-existent. It is equally obvious that the transfer of peasants from one village to another had about the same value as robbing Peter to pay Paul.

In the third century the edict of Caracalla which ordered the peasants living in Alexandria to return to their native village seems to be an attempt to extend the principle of *origo*, but there is no suggestion that the peasant was to be bound to the soil. It may have been a temporary expedient to increase the supply of agricultural labor. Whether the edict was permanent in its effects is unknown. Presumably the industries of Alexandria would have suffered by the loss of labor and it is likely that the edict was forgotten as soon as Caracalla left the country. In the latter part of the third century the persecutions of Christians probably did not affect the village communities to any extent. The history of monasticism records one or two instances of flight from the exactions of the tax-collector but the church was not recruited very extensively from this cause.[4]

The tenants of state property in the early Roman period were classified as δημόσιοι, οὐσιακοί or προσοδικοὶ γεωργοί. By the beginning of the third century the δημόσιοι γεωργοί alone are found in the extant documents. These are probably identical with the ὁμόλογοι and include all peasants liable to the liturgy of cultivating the state lands who were not exempted by age, illness, or other reasons. Since their livelihood depended on this cultivation, the liturgy was more often voluntary than compulsory. So far as our present evidence

[3] Wallace, Taxation in Egypt, s. v. μερισμὸς ἀνακεχωρηκότων.

[4] Ammianus Marcellinus (xxii. 23) says that the Egyptian peasant would blush for shame if he could not show on his body the scars of flogging endured in evasion of tribute. Evidently the Egyptian had a wide-spread reputation for tax evasion. Hieronymus records the story (c. 12) of a woman whose husband owed 300 solidi for taxes. He was imprisoned and scourged while his children were sold into slavery and his wife held for ransom (cf. P. Lond. 1915).

goes compulsion was required only under very special conditions and was never the normal practice in Roman Egypt.

There is less information about private property. The estates granted by the early Roman emperors reverted to the crown and became part of the imperial property before the end of the first century. The Romans seem to have left untouched the grants to catoeci and cleruchi made by the Ptolemies. In Roman times these holdings seem to have been small and in many cases ownership was vested in women. It is probable that these properties were cultivated by native Egyptians but there is no evidence that their tenancy was compulsory. The evidence for large private estates in the Roman period is limited and the few accounts which are preserved give no indication of feudal conditions. In A. D. 254 a contract for the cultivation of land on joint tenancy specified that one of the partners would provide a γεωργός. It is not beyond the bounds of possibility to interpret this document as if the γεωργός was regarded as a chattel, but such an interpretation is by no means necessary.[5]

In the Byzantine period the development of the colonate is determined primarily from the juristic writings. It is, however, questionable if the imperial constitutions applied to Egypt unless they were directed to the prefect or Augustalis or expressly referred to Egyptian conditions. Thus in a constitution addressed to the provincials Constantine decreed that if a colonus alieni juris were found on the property of another, the latter should not only restore him to his former master, but should pay the required capitatio for him during the time he was absent. The fugitive colonus was to be reduced to the status of a slave.[6] Later Constantius ordained that the coloni must be sold with the land.[7] There is no evidence that these laws were applied in Egypt.

The land reform effected in the fourth century must have had some reflection in the status of the tenants of public lands, but there is insufficient evidence to determine the matter. After the reform there is no further mention of public farmers (δημόσιοι γεωργοί). The land registers of Hermopolis indicate that the land was mostly private property and that this was presumably owned by the residents of the city. In the villages the state lands seem to be constituted as the village territorium and the residents of the village were given the possession of the land which they had formerly cultivated on lease from the crown. A constitution of Constantius dated A. D. 360 refers to the multitude of coloni in Egypt, many

[5] SB. 7474. [6] C. Th. v. 17. 1 (A. D. 332). [7] C. Th. xiii. 10, 3 (A. D. 357).

of whom have betaken themselves to the protection of military and other bureaucratic officials. These coloni had abandoned their village compatriots with whom they had evidently constituted a guild or κοινόν (vicani quorum consortium recesserunt).[8]

It is clear that we must distinguish the Egyptian coloni from their Western counterpart, and this constitution of Constantius in reality distinguishes two classes. In the first place the Egyptian colonus, no longer a tenant of the crown, has been organized as a consortium vicanorum which is probably the same as the guild of farmers, the κοινὸν γεωργῶν, which is responsible for the tribute of the village. The individual members may be described as coloni of the village or of the guild. Whether either of these corporations has a juristic personality is a matter of dispute but it clearly is responsible for the payment of the taxes demanded from each individual member. The constitution also envisages a development of the colonate along Western lines through patronage where the individual abandons his guild for some reason or other and becomes the colonus of some powerful individual. This latter development in Egypt was fought by a series of constitutions and finally culminated in the appointment of a commission of three men, perhaps in A. D. 398, to examine into the titles of possession which had been acquired by patronage. This commission was dissolved A. D. 416 and its judicial powers were transferred to the Augustalis with instructions to prosecute only in cases of titles acquired by this means since 398. The very name of patronage (patrocinium) must utterly disappear. But in all titles acquired by this means, the possessors must recognize pro rata the various public duties and obligations which the coloni under their patronage would have been called upon to perform in their former village territorium.[9]

By this same constitution the metrocomiae of Egypt are constituted as a closed order. By virtue of their status, the villagers were granted as compensation the right to possess their property and patronage was eliminated by denying the right of possession to any alien. While metrocomiae do not occur in Egyptian documents, it is known that the right of possession was enjoyed by villages such as Theadelphia, Philadelphia, and Spania and probably all villages with a political organization enjoyed the privilege.[10]

[8] Land registers of Hermopolis: P. Flor. 71; P. Leipz. 101. Constitution of Constantius; C. Th. xi. 24, 1.

[9] Zulueta, de patrociniis vicorum. The pertinent constitutions are found in C. Th. xi. 24, 1-6. Probably all of these dealt with Egypt and with Egypt alone.

[10] See p. 94.

There is no reason to believe that the imperial legislation directed against patronage in Egypt failed of effect. None of the conditions dealing with the problem in the Theodosian Code were repeated by Justinian in his Code. He included, however, a constitution of Leo which forbade those who sought to evade the law by fictitious leases or other forms of contract. Evidently capitalists had sought to evade the law of patronage in this way, and in A. D. 441 Marcianus enforced severe penalties in the Egyptian diocese on all who participated in such evasion. Justinian retained the law of Theodosius forbidding aliens the right of possession in the metrocomiae.[11]

The only example of a village under patronage in the fourth century is that of Euhemeria. This was a village on the edge of the Fayum oasis and was probably suffering the same fate as Tebtynis, Theadelphia and other villages on the edge of the desert. It had evidently placed itself under the protection of a certain Nechos, and in a letter to him written by the village authorities we have the first evidence of patrocinium yet found in Egyptian documents. The letter reads as follows: "We desire you to know, our Lord Nechos, that never in your father's time nor in yours have we surrendered our persons to you. Since we do what is required of us annually, we yield ourselves to no one. There are no aliens in our village, for we have two fire-signal towers, and no one can enter the village on foot or mounted (without detection). And if anyone does harm to your house or to your most excellent sons we do not oppose you (in exacting retribution?). Exact whatever seems fair for you to exact." In the address on the Verso, Nechos is called patron. The letter does not make clear the cause of complaint. Apparently the villagers were accused of harboring fugitives who may have inflicted some damage on the property of Nechos. The village seems to recognize his judicial powers but repudiates with dignity his attempt to control their personal liberties. Whatever the powers of Nechos, it is clear that the villagers were by no means the submissive serfs of the Western Mediterranean whose status at the end of the fourth century differed little from slavery.[12]

The Codes recognize three classes of coloni: originales, homologi, and adscripticii. The originales are presumably those peasants living in the villages who had been from time immemorial the cultivators of the soil, whether as slaves, compulsory tenants, or free. The homo-

[11] C. J. xi. 54, 1; xi. 56, 1. The contract in P. London 1796 is regarded as an attempt to evade the law against patronage. It may be noted that many leases of the sixth century have witnesses. This may have been required as a security against evasion.

[12] PRG. iii. 8. The reception of fugitives was a criminal offence (BGU. 323).

logi seem to be peculiar to Egypt and may be the local name of the originales. The term is not found in papyri of the Byzantine period, nor does Theodosius define their status in his constitution of A. D. 416. They are described as liable to certain public duties of liturgical character (praestare liturgos) and could be assigned to the cultivation of village lands. If they abandoned the villages to which they were assigned and passed over to other villages or masters they could be compelled to return. If the masters (domini) delayed their return, they were obligated to perform the functions of the homologi and to recompense their former masters for whatever expenses they had incurred on their behalf. Presumably the homologi of the Byzantine period represent those villagers who had either not acquired possession of land when the state surrendered the crown land to the villages or had lost their possession in some way. These were liable to the liturgy of cultivating abandoned lands whenever the fields could be restored to cultivation.[13]

The colonus adscripticius should probably be defined as a peasant of free status who voluntarily sought the patronage of some wealthy or powerful person and enrolled as his tenant. The patron thus became responsible for whatever assessments in money or in kind were imposed upon his tenant. According to the constitution of Theodosius cited above the homologi could be ascribed to a village but this act did not affect their status. A Greek constitution ascribed to Anastasius reads as follows: "Some coloni are adscripticii and their peculium belongs to their masters. Others become free *μισθωτοὶ ἐλεύθεροι* after thirty years, retaining their property. These also are compelled to cultivate the land and to pay tribute. This is profitable both for the master and for the tenant." This law was repeated by Justinian in his Code and he decreed that the children of the free coloni should have the status of freemen but should be required to cultivate the land of their fathers.[14]

In Egypt the *γεωργὸς μίσθιος* is found occasionally at Aphrodito,[15] but he is a free agent and probably should not be regarded as the *μισθωτής* of the Anastasian constitution. The *γ. ἐναπόγραφος* first appears in A. D. 497 and is found on Apion's estate at Oxyrhynchus.[16] In all examples the *γεωργός* is a party to a formal contract (*χειρογραφία*) with the agent of the landlord. Of these contracts three types may be distinguished. In the first type the colonus

[13] C. Th. xi. 24, 6.
[14] C. J. xi. 48, 19.
[15] P. Cairo 67093, 67095; P. Flor. 93. In P. Cairo 67093 the *μισθωτής* is an Aurelius.
[16] P.O. 1982.

acknowledges the receipt of some piece of farm machinery.[17] There is never any *quid pro quo* formally expressed, but in the earliest loan the recipient agreed to do the work of irrigation blamelessly, to pay his rent cheerfully, and to yield obedience in all things pertaining to the interest of his landlord. It may be noted that a tenant on another estate, acknowledging the receipt of a similar loan, though not describing himself as ἐναπόγραφος, promised obedience in all things.[18] This clause never appears in similar contracts of the sixth century though such obedience may be implied. If so, the obedience promised may have been discharged by stated service on the landlord's property such as was demanded in the manorial system of the West.

A second group of these contracts consists of loans in money by the landlord to the tenant.[19] No interest is ever stipulated in these loans but the tenant pledges repayment on the security of all his possessions (κινδυνῷ πάντων τῶν ἐμοὶ ὑπαρχόντων). Here it should be observed that the constitution of Anastasius cited above explicitly states that the peculium of the colonus adscripticius belongs to the master, and could not therefore serve as pledge. Similarly a group of vine-dressers, headed by their φροντιστής, and all adscripticii of Apion, agreed to deliver 24,000 sestarii of wine from the vineyard which they cultivate. Failure to perform their part of the contract involved a penalty which also was guaranteed by a pledge of all their property (τὰ ὑπάρχοντα).[20]

Finally there is a group of documents where surety is provided that the colonus adscripticius will remain on his holding or will perform some required liturgy.[21] This guarantee was not limited to the colonus adscripticius. Perhaps the earliest example in the Byzantine period is the guarantee given by a deacon to the praepositus pagi

[17] P.O. 1982 (A.D. 497), 1900 (A.D. 528), 1983 (A.D. 535), 1985 (A.D. 543); P. Lond. 775 (A.D. 567), 774 (A.D. 582); P.O. 1377 (A.D. 584), 1988 (A.D. 587), 1989 (A.D. 596), 1990 (591), 1991 (A.D. 616). See also P.O. 192, 194, 202.

[18] P.O. 1899 (A.D. 476). All recipients of irrigating machinery do not say that they are of this class (PSI. 60, A.D. 595; P. Lond. 776, A.D. 552). In three cases the tenant actually sells the axle to Apion and has the amount credited to his account (P.O. 1998, 1989, 1991).

[19] P. Lond. 774 (A.D. 582); P. Amh. 149 (6th cent.).

[20] P.O. 1896 (A.D. 577).

[21] P. Lond. 778 (A.D. 518) and P.O. 1979 (A.D. 613) guarantee that the tenant will perform the liturgy of field guard. P.O. 2203 may be similar. Similar contracts are found at Aphrodito but without mention of the status of the individual (P. Cairo 67296-7, 67328, 67334; P. Flor. 284, 287, 288). Guarantee of remaining on tenancy: P.O. 135 (A.D. 579), PSI. 59 (A.D. 582), 61 (A.D. 609), 62 (A.D. 612). P.O. 996 (A.D. 584) is said to be similar to P.O. 135, and P.O. 200 is said to be similar to P. Lond. 778 (P.O. 198).

that a tenant will continue on his lease for the current year. Presumably this is a case of tenancy on village land but the document is too fragmentary to determine fully the nature of the obligation.[22] In any case the law did not bind the tenant to the soil. In the sixth century such guarantees were provided for ordinary liturgies as well as for tenants. In the guarantee of lessees the surety was sometimes a fellow colonus, though usually from a different district. Possibly these sureties were required on those parts of the estate where there were only one or two tenants in a district and where there were not sufficient numbers to form a guild which apparently took the responsibility for defaulting members.

It may be noted that all the contracts of the *ἐναπόγραφοι* on Apion's estate are made by Aurelii. The evidence of the right of contract and of the right to pledge their property as security indicates that the status of the coloni adscripticii of Apion's estate is far different from that in the constitution of Anastasius or of the serfs of the Western Mediterranean. The former had contractual capacity, the right to pledge his property, and his tenancy was guaranteed by sureties (on the side of the lessor), but there is no evidence that he was a serf. We suggest that the *ἐναπόγραφοι γεωργοί* were free tenants. Since Apion enjoyed the right of autopragia, he accepted the responsibility for the taxes on his property. If a tenant took a lease from Apion the fact must be registered in the tax district where the estate lay so that the tenant would not be liable for the taxes of his native village. Hence we find individuals of Oxyrhynchus registering their transfer of tax liability from one district to another, and at Aphrodito residents of other villages in the pagarchy of Antaeopolis must appear before the defensor if they wished to be registered at Aphrodito.[23]

Whether any of the tenants on the estate of Apion belonged to the class of homologi is unknown. The guild of farmers which appears in some accounts, usually in districts where there are six or more tenants, is probably a survival of the ancient guild of public farmers (*κοινὸν δημοσίων γεωργῶν*) but there is no clear evidence that they were bound to the estate. It is true that Apion and other landlords maintained their private prisons. However it is quite unlikely that the prisoners were tenants whom they maintained in idleness. More probably the prisoners were members of families seized for defaulting obligations and held for ransom.

[22] P. Oslo 113 (A. D. 346). P. Würz. 16 (A. D. 349) is similar. The earliest guarantee to a landowner is SPP. xx, 127 (A. D. 463).

[23] P.O. 126, 1887; P. Cairo 67117-9, 67329.

The abandonment of the principle of state-owned land for private ownership or private possession revolutionized the status of the peasant in Egypt. That all of them became possessors of property is unlikely, or that any of the villagers were exempt from the liturgy of cultivating abandoned land is equally unlikely. But it is quite unjustifiable to claim that serfdom developed uniformly over the whole Mediterranean world on the same lines. Egypt did not have great private estates so long as the land was owned by the state. The peasant on this state-owned land may have had a semi-feudal status but the extent of his feudalism seems to lie in the obligation to cultivate abandoned land and to render aid in the maintenance of the irrigation system. When the crown property was thrown open to private possession, the development of private estates by patronage was vigorously opposed. There is no reason to doubt the success of imperial legislation in this respect. However estates could develop by purchase, by dowry, by leasing of lands. Even purchase was prevented in the case of outsiders in the metrocomiae, and in the accounts of Apion, his holdings were widely scattered and in no case can he be said to own a village. Even in the ἐποίκια there are seldom more than ten tenants and often less. While we cannot question the fact that great estates did develop during the Byzantine period, the proof of serfdom is still to seek.

Two factors should be noted which militated against serfdom. The great tax register of Antaeopolis indicates that the taxes in kind were surprisingly low. There is no reason to believe that this register does not present the true picture of imperial taxation at this time. Thus the peasant had grain to sell for the free market of the time. The average price of grain throughout the sixth century, about ten artabas per solidus, gave the farmer a good return and the large sums of gold collected annually from Aphrodito, Antaeopolis and Oxyrhynchus in taxes is clear indication that Egypt was prosperous or at least plentifully supplied with gold. The second factor which may well have mitigated any attempt of landlords to oppress their tenants and to reduce them to serfdom was the growth of Christianity, especially monasticism. When the anachorete became a saint, he was protected by the power of the Church and his escape from oppression was rendered easy. While monasticism may have grown in its early period as a result of the oppression of the tax-collector, there is no evidence that the peasant sought this escape in the later period.

5. IMPERIAL ESTATES

In the Codes of Theodosius and Justinian the imperial property appears as res dominica, patrimonialis or privata, as praedia fiscalia or tamiaca, as fundi patrimoniales.[1] The imperial constitutions dealing with these properties are addressed to the praetorian prefect, the comes largitionum sacrarum, or the comes rerum privatarum. While it is probable that the jurisdiction of these officials was sharply defined, the available evidence is not sufficient to determine the matter.[2]

The imperial property was either leased to contractors after public bidding or it was managed directly by officials. These lands were frequently granted in leasehold which had an emphyteutic character.[3] The right of possession was granted anyone who occupied abandoned lands and brought them under cultivation provided his possession was not questioned for a period of two years.[4] The sale of imperial property was halted by a constitution of Theodosius.[5] In A. D. 425 the right of sale to tenants in the Thebaid was allowed, and presumably the privilege became general.[6]

The papyri contain comparatively few references to imperial property in the Byzantine period. In the third century the idiologus was in control. To him the procurator usiacus was directly responsible. Under the latter came the overseers (*ἐπιτηρηταὶ οὐσιακῶν ἐδαφῶν*) with *προνοηταί* or *φροντισταί* in charge of individual properties.[7] Apparently the anarchy of the period led to a growth of officials whose salaries absorbed the profits of the estate. In A. D. 288 a certain Servaeus Africanus whose rank or title is unknown wrote to the strategi of the Heptanomis and Arsinoite nome complaining of the growth of bureaucracy as follows: "It has therefore become necessary to send you instructions to cause the election, on the responsibility of the several curiae, of a single trustworthy superintendent (*φροντιστής*) over each estate and to put an end to the other offices. The superintendent elected shall have the power to

[1] The constitutions in C. Th. v. 12-20 are unfortunately poorly preserved. A few others are scattered through the Code, chiefly in Book xi. For Justinian see C. J. xi. 61ff.

[2] The praetorian prefect was evidently more concerned with the status of coloni and police powers and less with financial administration. See Pauly-Wissowa, RE. *s. v.* res privata.

[3] The leaseholds were bid at public auction until A. D. 364. After that date the emphyteutic lessees were permitted to retain their leaseholds in perpetuity without change in the canon of rent (C. Th. v. 15. 15).

[4] C. Th. v. 11. 12.

[5] C. Th. v. 16. 32.

[6] C. Th. v. 16. 34.

[7] Wilcken, Grundzüge, 158.

choose two or at the most three other persons to assist him in his work. In this way useless expense will be stopped and the imperial estates (*οὐσίαι ταμιακαί*) will receive proper attention. You will of course see to it that only such persons shall be chosen as assistants as are in a position to stand the test." This reform placed the responsibility for administration under the municipal senates.[8]

According to Eutropius, Diocletian confiscated a great amount of property, probably of Alexandrians who had supported Achilleus, and instituted many lasting reforms.[9] It was probably from these confiscations that a grant was made to Theon.[10]

The procurator rei privatae for Egypt in A. D. 307 was Valerius Arterius who issued orders to officials of Oxyrhynchus to determine whether a certain Theodorus, ex-army officer, owned property in the nome which might be confiscated to the fiscus.[11] The magister rei privatae required the comarchs of a village in the Heracleopolite nome to furnish 30 minae of Koitic wool.[12] The village evidently lay on an imperial estate and the village officials were responsible for taxes or requisitions. In A. D. 322 the praepositus patrimonialium was nominated for each pagus of the nome as a municipal liturgy. The incumbent for the tenth pagus was also the manager (conductor) of the public post for a year.[13]

The division of the imperial property according to pagi probably goes back to the institution of that administrative unit early in the fourth century.[14] Evidently the system devised by Diocletian had not been altogether satisfactory. The praepositus was a senator, and if one were appointed for every pagus, the economies envisaged by Diocletian were again endangered.

In the land reform which was made by Constantine or Constantius the *γῆ οὐσιακή* disappeared.[15] Private owners henceforth speak of

[8] P.O. 58.
[9] IX. 23.
[10] P. Princeton 119.
[11] Mitteis, Chr. 196.
[12] Wilcken, Chr. 178, Diocletian-Constantine.
[13] P.O. 900.

[14] The last mention of a toparchy appears to be in A. D. 307 and the first mention of a pagus in A. D. 310 (Gelzer, Studien, 57). If the indiction cycle of five years prevailed between A. D. 297-312 (Kase, Papyrus Roll. 25), the year 307 would be the natural date for the change. The first mention of the procurator rei privatae is about the beginning of the new indiction in 307 (Mitteis, Chr. 196). See Boak, Mélanges Maspero.

[15] See p. 18. The *οὐσίαι* in the land register of Hermopolis are all private (P. Flor. 64, 71). In the latter register (lines 746-751) the Ulpian and Platonic (Plotina?) *οὐσίαι* are held in the name of the proedri of the pagi in which they lay. These may well be remnants of the endowments granted by Hadrian to maintain children of Antinoites (Econ. Survey II. 252). The *γῆ οὐσιακή* in A. D. 320 (P. Cairo Pr. 4) is said to be inherited from the petitioner's father and is therefore private property. In A. D. 330 Demetria wished to sell 42 ar. *γῆ οὐσιακή* and 8 ar. private land (CPR. 19). This is the

their property as οὐσίαι and this term is used for private ownership. Some of the γῆ οὐσιακή had been assigned as an epibole to private owners and doubtless this now became their private property. Some was granted in emphyteutic leaseholds, and some was sold. It is unknown how much, if any, continued in imperial possession. Apparently the catholicus was in supreme command for the province. At any rate in A. D. 346 Flavius Macarius,[16] as procurator of imperial property (ἐπίτροπος δεσποτικῶν κτησέων), wrote to Flavius Abinnaeus, prefect of the camp at Dionysias in the Fayum as follows: " The authority of my lord Flavius Felicissimus, most eminent *comes* and *dux*, in his care for the imperial house has authorized for me a military escort from the soldiers under your command in order to collect the imperial revenues (εἰς τὴν ἀπαίτησιν τῶν δεσποτικῶν κανόνων). Therefore in accordance with the despatches of my lord, the aforesaid *dux*, hasten to furnish the soldiers for the aforesaid exaction under the command of the *officialis* sent by my lord, the *dux* and by my lord the most eminent *catholicus*, knowing that if you show unwillingness to send these troops the matter will be brought to the attention of my lord the *dux*, namely that you have plotted against the exaction (of revenue) for the imperial house."

This letter illustrates in part the situation described in the constitution of Constantius some years later.[17] Abinnaeus is frequently called patron in letters addressed to him. Clearly his patronage could be bought at a price, and in command of the troops in the Fayum he became an important and powerful person. Macarius was well aware of this fact and it is interesting to note that he claims to be acting on the orders of his superior, the military commander (*dux*) of the province, when as a matter of fact he was the subordinate of the catholicus. Fearing lest Abinnaeus might not heed his request, he had to have some authority from the *dux*. Whether the *dux* had given the authority claimed or not, the tone of the letter implies some doubt as to whether the command could be enforced.

The catholicus first appears in Egypt in A. D. 246 where he was acting in conjunction with the procurator Augustorum in the sale of public land (ἐκ τοῦ δημοσίου) which had apparently been abandoned or forfeited.[18] In A. D. 346 he evidently controlled the im-

last record of usiac land, but it is here subject to private sale. In P. Leipz. 101 a ταμιακὴ οὐσία was registered as now in private possession.

[16] P. Lond. 234.

[17] C. Th. xi. 24. 1, A. D. 360.

[18] P. Lond. 1157, see P.O. 78. Preisigke (Pauly-Wissowa, RE. *s. v.* Καθολικός) would place the introduction of the office earlier.

perial possessions and probably about this time he issued the brevium of the annonica.[19] Wilcken identified him with the rationalis rerum privatarum.[20]

The accounts of an estate at Hermonthis which is under the direction of former procurators belong probably to private property. At least the estate seems to lease land from other farmers to whom rent is paid.[21]

In A. D. 374 a landowner of Hermopolis held some post in the administration of imperial estates but the title is not clearly determined.[22]

In the fifth century the imperial property is known as the " divine house " (*θεῖος οἶκος*, less frequently *θειοτάτη οἰκία*). When this practice began is unknown. The diocese of Egypt was established ca. A. D. 380 and the new system may have been inaugurated then.[23] In A. D. 420 a landed proprietor of Oxyrhynchus acted as procurator of the most divine house (*ἐπίτροπος θειοτάτης οἰκίας*) and made a loan in advance on a sale of wine.[24] In the following year we find an administrator (*ὁ διωκῶν τὰ πρ. τ. θ. οἰκίας*) who issued receipts to the bailiffs of various villages. Whether he was the superior of the procurator or replaced him is unknown.[25]

References to the " divine house " are comparatively rare in the sixth and seventh century and come largely from Oxyrhynchus. Imperial property was located in the villages of Pempo, Cinea, Mescanounis, and Machauson.[26] The village Patrimonialis, found in a list reputed to represent the holdings of the Apion family, must have once formed part of the imperial property and had probably developed as an independent village.[27] Unfortunately the accounts from Oxyrhynchus are usually too fragmentary to determine whether they represent private, imperial, or public records of a village or pagarchy, and the problem is complicated further by the fact that

[19] P. Rein. 56. The inscriptions (CIG. 4807, 4892) give no further light on his powers.

[20] Gelzer, Studien, 41 and Addendum p. ii.

[21] P. Leipz. 97. Mitteis suggested that the estate was imperial because of the mention of ex-procurators, but Wilcken has correctly observed that the former officials could easily become owners or managers of their own estates.

[22] P. Flor. 320. The title is represented by the monogram ⸸ for which no interpretation is offered. Possibly for *χειριστῶν*, cf. P.O. 58.

[23] Wilcken, Grundzüge 74.

[24] P.O. 1973. On these loans see Taubenschlag, Law of Greco-Roman Egypt 256. In P. Baden 173 the adjutant on an imperial estate loaned money to a tenant to enable him to pay his tax or rent.

[25] P.O. 1134.

[26] P.O. 1915, 2055: PSI. 196-7.

[27] P. Iand. 51. See Abbott and Johnson, Municipal Institutions, 10ff.

the large private estates seem to have modelled their organization on that of the imperial property.[28] Thus we find a report of receipts from a property in which there were two dioceses (διοικήσεις), each controlled by an agent who had the rank of *comes* and who had several pronoetae under him.[29] Grenfell and Hunt have pointed out the difficulty in determining whether part of the estate of Apion had been confiscated by the emperor or whether Apion was acting as agent of the imperial government in rendering an account of imperial land. The latter seems the more likely alternative since the rentals or taxes (φόροι) were assessed " according to immemorial custom," and the assessment in money was fixed at a solidus per aroura with an extra charge of 1½ c. per solidus of which the landlord received five-eighths of a carat while the balance went to his agent.[30]

In this period the catholicus reappears again in a couple of records, but with insufficient evidence to determine his functions. Wilcken had identified him with the rationalis rerum privatarum recorded in the Notitia Dignitatum for Egypt, but whether he continued to maintain the same rank for two centuries may be a matter of debate.[31] In an account dated in the sixth century John calls himself secretary of the village of Spania of the most distinguished lord John, catholicus (γρ. κ. Σπανίας τοῦ λαμπ. κυρ. Ἰωάννου καθολ(ικοῦ)), and acknowledges the receipt of 7,057 art., in chancery measure, of ῥυπαρός wheat which he has delivered to the dock on the river. The editors suggest that the village formed part of the domain of the catholicus.[32] The total of the embole is larger than that of Aphrodito and if Spania was part of a private or imperial domain it is somewhat surprising to find so many *possessores* recorded in the village.[33] A second document is dated at the end of the sixth or beginning of the seventh century and has the ends of three columns preserved which seem to record payments for three successive years.[34] In the second column the amount delivered to Menas, catholicus, was 98,321 artabas in the great chancery measure. Of this 6,592 art. went to the grooms at the posting station of Tacona. Of the remainder 1,780 artabas were earmarked for the προσφορά of Alexandria while 79,069 artabas went to the embole. Both of the latter were designated as paid in the ordinary chancery measure (40 choenices) and in ῥυπαρός wheat, which presumably means that the supplementary fees were included in the amounts. These supplements in the 14th

[28] See Hardy, Great Estates.
[29] P.O. 2031. The editors suggest that this is part of Apion's estate.
[30] P.O. 1915.
[31] See note 20.
[32] P.O. 1997.
[33] P.O. 2058.
[34] P.O. 1906.

and 15th years were 14%, and in the 1st year of the following indiction an additional charge of 7% seems to be added to the embole. The mention of a two-thirds share in columns I and II leads to the suspicion that the payments were made to a private estate which was shared by heirs and was still undivided. However the great chancery measure is not found elsewhere and the mention of the catholicus as the recipient (in Col. II) may signify that these large amounts represent the collections of the imperial estates at Oxyrhynchus. If so, the revenues were collected in the great chancery measure (52 choen.) while the amount forwarded to Constantinople was measured by the ordinary chancery of 40 choenices. This left a balance of 20,858 artabas in one year, or more than a fourth of the total receipts. What happened to this balance is not recorded. Perhaps the fact that such a balance remained on hand is to be taken as supporting evidence for regarding this account as from a private estate.

The arable land of the 'divine house' administered by Apion seems to be taxed only in money, or at least this is what the agents of Apion collected.[35] Some further evidence of taxes is found in a record of the department of the arcaria.[36] A large sum (2,271 solidi) was collected as commutation for supplies of some kind; in addition a small number of contributors (*συντελεσταί*) provided 15,688 artabas of barley. Of this the 'divine house' paid 3,490 artabas, while the "noble house" of Apion gave 76½ artabas. The rest was contributed by twenty-six proprietors.

It is impossible to determine whether the imperial estates grew by patronage since the emperors sought to discourage this practice in Egypt. A report is preserved which records the fact that twenty-three tenants on the estate of Thaesis had fled to the *κτῆμα* of Machauson which belonged to the "divine house."[37] Since it is unlikely that these fugitives could transfer their leaseholds to the imperial estate along with their persons, the reason for their flight can only be surmised.

The granite and alabaster quarries, the deposits of alum and natron seem to be part of the res privata.[38] Salt was apparently a government monopoly throughout the empire, but no papyri of the Byzantine period make any mention of the salt trade.[39] Since the

[35] P.O. 1915.
[36] P.O. 2020. This is the only mention of *syntelestae* at Oxyrhynchus.
[37] P.O. 2055.
[38] See Trade and Commerce.
[39] C. J. iv. 59. 1; iv. 61. 11.

Augustalis was authorized to appoint the archigerontes and dioecetae of the ergasiotani of Alexandria, it is evident that imperial factories of some kind were established in the city.[40] The making of papyrus, the weaving of linen, and possibly the manufacture of products imported from the East may have become imperial monopolies.[41] Procopius charged Hephaestus with bringing the sale of all the necessities of life at Alexandria under monopolistic regulations with great profit not only to himself but also to the imperial revenues.[42] The testimony of Procopius is not too trustworthy, but it is quite possible that Hephaestus may have managed the existing monopolies with greater efficiency than before.

6. PRIVATE ESTATES

The growth of latifundia was a characteristic feature of the agrarian economy of the Western Mediterranean in the days of the Roman Republic and Pliny ascribed the ruin of Italy to the large estate. In Egypt the Ptolemies owned the greater part of the arable land. Private ownership was limited to a few special grants which could be revoked at will, while cleruchs and catoeci held quasi-ownership to which they clung with great tenacity. Thus the Nile Valley was in general unaffected by the economic movements of the West.

When Augustus took possession of Egypt the great bulk of the land was retained in its former status. While grants were made to friends and members of the imperial family, these seem to have reverted to the crown and became part of the imperial *οὐσίαι*. During the first two centuries of the Christian era few farm accounts survive and none of these indicates holdings of any considerable size.[1] Nor do the land registers indicate large holdings whether as tenants or proprietors. Alexandrians held estates of some value at Oxyrhynchus and probably elsewhere but whether these were arable or garden-lands cannot be determined.[2] The great tax-register from Caranis

[40] C. Th. xiv. 27. 1 (A. D. 396). Justinian repeated the law adding, however, that the appointees must be Christian (C. J. i. 4. 5). The document preserved in SEG. viii. 355 seems to deal with regulations for payment of overtime in these shops. For working four hours at night the workmen were allowed two thirds of their daily wage, and it was forbidden to keep them in chains unless the work was urgent.

[41] See Loane, Class. Phil. xxxix (1944). 10.

[42] Anecdota xxvi. 36.

[1] Economic Survey ii. 174ff. The survey of private land in P. Ryl. 202 indicates small holdings at the end of the second century.

[2] P.O. 1462.

in the Michigan collection shows that small holdings of garden-lands in that district were still the rule at the end of the second century.

During the revolutionary period of the third century some changes may have occurred. There was considerable inflation of the currency in the latter half of the century and at this time it is observed that a considerable number of farm accounts appear in papyri and ostraca. There is no certainty as to the origin of these accounts, but with rising prices of wheat, farming had become much more profitable in Egypt than ever before, and capitalists may have extended their leases of crown or imperial lands. Although the state was desperately in need of money, there is no evidence that crown lands were sold, nor that private estates had yet begun to develop in Egypt.

According to Eutropius, Diocletian made many reforms in Egypt after suppressing the revolt of Achilleus, some of which lasted until his day.[3] While his edict shows that the emperor intended a survey of all the land in Egypt, there is no evidence that any serious change in land tenure was proposed.[4] Yet the declarations of land which were filed shortly after this seem to suggest that crown land could be ' possessed ' by the declarer.[5] We have record of one grant of land made by Diocletian, presumably to a veteran, but the grant does not seem to be large.[6] Whatever changes were made by him, the old classifications of crown, hieratic and usiac land persisted as late as A. D. 332. Somewhere between that date and the recording of the land registers of Hermopolis the old classifications disappeared and at Hermopolis all land seems to be private (ἰδιωτική), public (δημοσία), or municipal (πολιτική).[7] In P. Leipz. 101 one entry of six arouras is listed as imperial estate (ταμιακὴ οὐσία) formerly owned by Ammonius but now seeded as private property (ἰδιωτικὴ ἐσπαρμένη). If this was actually private property, it is curious that no other owner is named. Even if it were leased to a private individual the name of the tenant would normally be given. In this register, which is incomplete, the holdings of private land are all quite small, seldom more than six arouras. The long register preserved in P. Flor. 71 seems to contain a complete list of the holdings of citizens residing in the West Garrison and of Antinoites who have property in the Hermopolite nome. The average size of 470 holdings is 44 arouras (including both private and public land). Of these only eight exceed 500 ar. and the largest estate of 1,370 ar. (of which

[3] IX. 23.
[4] See Land Reform.
[5] See Declarations.
[6] P. Princeton 119.
[7] P. Flor. 71. Aurelia Charite, named in this register, was active in granting leases around A. D. 340. See e. g. SPP. xx. 89, 91, 94, 95.

1,198 ar. are described as private) was registered as undivided property in the name of the heirs of Ammonius. These figures indicate that private property was on the increase and that one or two residents of Hermopolis were in control of relatively large estates by the middle of the fourth century.

The estates which the Emperor Constantine presented to the Churches at Rome were presumably confiscated by him after the defeat of Licinius.[8] The revenue from them indicates that the former owner was interested in paper-making and the manufacture of ointments and spices, some of which came from India and Arabia. Nothing can be inferred about the amount of land included in these estates since most of the revenue may have come from factories in Alexandria. The receipts of money or grain given by sitologi do not indicate any large holding of arable land.[9] An account from Hermopolis A. D. 314 reveals considerable expenditure on what seems to be a water system for the owner's villa and a large number of laborers employed apparently in the preparation of ground for planting a vineyard.[10] Although the owner evidently commanded considerable capital there is no way of estimating the size of the estate.

Most accounts of the fourth century are fragmentary [11] but from Hermonthis we have a report of cereals received and paid out for a period of four months (Tybi-Pharmouthi) in A. D. 338, which is almost entirely preserved.[12] The report was made to two men who are called ex-procurators (*ἀπὸ ἐπιτρόπων*) who are presumably owners and not, as Mitteis suggested, agents of an imperial estate, although they probably had served in that capacity before retirement. The size of the estate cannot be determined. Part lay in the village of Sycaminus, part at Oros Isidiu, but the headquarters probably lay at the village of Pion. Here there was a tract of land made up of at least seven *κλῆροι* which were farmed directly by the owners (*αὐτουργία*), under the supervision of two foremen (*ἀρχιγέωργοι*) maintained by the estate. In addition there were nine other *κλῆροι* which were worked by tenants to whom 800 artabas (more or less) of wheat were distributed for seed in Tybi (Col. III-V). This land must be under artificial irrigation if it was seeded in mid-

[8] See under Ecclesiastical Property.

[9] P. Leipz. 84: Kase, Papyrus Roll. For an analysis of these documents see p. 230.

[10] PER. E. 2000. See also SPP. xx. 75, 81, 85, which are probably accounts of estates.

[11] See BGU. 34, 41; P. Lond. 1259, 1653-4; P. Strassb. 28.

[12] P. Leipz. 97. From the same estate comes P. Lond. 125 which contains only part of bimonthly expenses but is of interest in showing a weaver of garlands and a mouse-catcher on the pay roll.

winter and there were about 800 arouras in this lot. In addition 141 artabas of barley, 150 artabas of lentils, 431 artabas of aracus and $1\frac{2}{3}$ art. of clover distributed for seed in this period of four months probably required at least 700 arouras on the assumption that an artaba of seed per aroura was the rule.

The estate employed a number of workmen who were given an allowance of wheat every two months as follows:

	MECHIR	PHARMOUTHI
Cooks (ὀψωνιασταί)	3 (plus)	(entry blank)
Gardeners	———	12
Cowherds	6	6
Assistant cowherds	3	1
Wagon drivers	10 (plus?)	7
Laborers	12 (plus)	20
Pumpers	22	21
Camel drivers	3	none
Assistant camel drivers	5	none
Donkey grooms	2	2
Assistants	none	4
Boys (παιδάρια)	15	15
Assistant workmen	none	1
Shepherds	13	11

In addition a cowherd and four others received an allowance of wheat in Phamenoth for two months. Their names do not appear in the other lists. Distributions were made to a few others at the order of the owners. One of these recipients was Thaesis who was a slave but since she only received an artaba of grain for one month, she was probably not a regular member of the household. The usual allowance for two months was two artabas, but a few received an extra artaba while the camel drivers and their assistants varied from 4-6 artabas. Barley was used as fodder for cattle, asses and mules. The small amount delivered to the baker daily (Col. XXIII) was probably for the donkey used in grinding the daily supply of wheat. Aracus was used for pigs, pigeons and ostriches. Two varieties of pigeons, Greek and Egyptian, were kept. The quail were fed wheat, half an artaba in Mechir, two in Phamenoth, and five artabas in Pharmouthi. Probably the young broods were hatched in Phamenoth thus accounting for the increased allowance.

The account of cereals gives some idea of the extent of the estate and the diversity of crops. In the following summary of the period Tybi-Pharmouthi fractions are omitted:

	ON HAND	DISTRIBUTED	BALANCE PACHON 1
Wheat	(2495) art.	2,379	116
Barley	701	292	399 (sic)
Beans	130	169	deficit 39
Aracus	795	471	324
Lachanus	944	140	804
Croton	2	3	deficit 1
Beans [12a]	12	4 pints	12
Fenugrec	18	——	18
Mustard	14	4 pints	14
Lupine	82	4 pints	82
Clover	4	2	2
Pulse	11	——	11
Salt	940	8	932

The first column is made up of the balance in hand at the beginning of the period and the amount received during the four months. Most of the receipts are from tenants in arrears (*φόροι χρεωστούμενοι*). Mitteis inclined to believe that the *φόροι* were payments of taxes. In support of this view is the fact most payments of wheat, barley, and beans have an extra charge for transport, for a sportula (*σπονδή*), and in some cases a payment for the account of the contract (*χειρόγραφος*), probably for taxes. Moreover some of the *φόροι* were sent directly to the public granaries. On the other hand, the *φόροι* go into the total of the receipts of the estate and it is probable that they were arrears in rentals by tenants. It would not be unusual for the tenant to pay the cost of transport from the field to the granary and he might be required to pay for the transport of the tribute down the Nile to Alexandria. Nor was a sportula unusual in leases of land. More difficult to explain is the payment for the account of the contract (*χειρόγραφος*) which in some cases exceeds or equals the amount of the rent (Col. 1, XIX), but this charge is rare, and is found only with payments of barley and wheat. It is probably used here as the synonym of *διατύπωσις*. In favor of believing that *φόρος* mean rentals is the fact that the estate made these payments to individuals (Col. IX) and presumably this was for land which the estate cultivated under lease. One such payment is expressly said to be for taxes (*τελέσματα*) which the estate paid and charged against the rental. It is possible that in these leased lands

[12a] We are indebted to Mr. Naum Jasny for the observation that *φάσηλος* cannot be translated as kidney-bean. The latter originated in America, and was unknown in the classical world.

we may have an example of patronage which began to develop in this period.

For the changes in land tenure and the development of the private estate from the middle of the fourth century until Justinian issued his code, we are dependent almost entirely on the imperial Constitutions preserved in the Codes of Law. Even this evidence must be used with caution, for Egypt was still a law unto itself in many respects and it is never certain that the constitution had universal application.

A constitution of Constantius in A. D. 360 refers directly to conditions in Egypt.[13] Evidently the village communities were now responsible for the tribute from the land within their territory—the former crown land. When any of the villagers fled, the tribute had to be made up by the others (consortium vicanorum). That conditions in the village community were not healthy is evident by the flight (ἀναχώρησις) of villagers in the earlier Roman period when the capitation tax for those who had fled was distributed among the remaining villagers.[14] In A. D. 346 we have an oath of surety taken by Moses, a deacon of the village church, that two farmers will remain on their lease for the current year.[15] This oath was given to the praepositus of the first pagus of the Hermopolite nome. This seems to be the first example of this kind of surety which became quite common in the sixth century. At any rate the constitution of Constantius affords the first evidence of patronage (patrocinium) in Egypt whereby hard-pressed peasants sought the protection of powerful patrons against the oppression and iniquities of the tax-collector. The emperor directed that those who had concealed such peasants (coloni) or had promised protection should pay from their own resources whatever obligations the villagers had discharged for their defaulting and fugitive members. The praetorian prefect was further ordered to sever the relation of patronage between the patron and the client.

A few years later Valentinian put teeth into this law by imposing a fine of 25 lbs. of gold (1,800 solidi) on those who promised patronage.[16] That the protection was not one-sided but that a quid pro quo was demanded is shown by the final clause of this constitution which states that the fiscus shall claim half of what the patrons have been accustomed to take. There is as yet no evidence that the patron claimed the land which the colonus cultivated but evidently he took

[13] C. Th. xi. 24. 1. The classic study of patronage is Zulueta, de patrociniis vicorum.
[14] Wallace, Taxation in Roman Egypt.
[15] P. Oslo 113.
[16] C. Th. xi. 24. 2. A. D. 368 (or 370).

a toll of the produce and the next step in quasi-ownership of the land was natural, and evidently not long delayed.

The constitution of Constantius indicates that officials, and particularly the military authorities, were ready to give their protection to the oppressed. We have seen that Abinnaeus in the Fayum was regarded as a patron by many of the natives.[17] Possibly the estate of the exprocurators at Hermonthis was developed in part by the patronage which they were willing to extend to the natives. But patronage took in not only individuals but whole communities. A good example may be seen at Euhemeria where the villagers protested to their patron, Nechos, on what they regarded as an encroachment on the freedom of the clients.[18] Apparently the villagers had been accused of harboring runaways, which was a criminal offense.[19] Nechos had then charged that the villagers or these refugees had inflicted some injury to his sons or to the estate and demanded hostages. The villagers refused to surrender their persons but seemed quite willing that he should exact from the guilty party whatever punishment he thought fair. Nechos is called patron in the address and evidently had taken upon himself judicial power without reference to the civil courts.

A constitution of A. D. 395 addressed to the Comes Aegypti reads as follows: "Any member of your staff or from any rank (ordo) who have been discovered to have become the patrons of villages shall pay the established penalty. Proprietors of estates, being properly held in check, shall be compelled to obey the imperial laws even against their will and to discharge the liturgies of the state. Any village relying on the power of their patron or their own numbers to escape their public obligations shall be subjected to proper punishment."[20] This law indicates that the private land owners in Egypt were now so powerful that they were in a position to defy the government, but in addition some of the villages enriched by their ownership of land, had either been able to buy protection from high officials in the bureaucracy or were themselves also powerful enough to defy the imperial power.

It is evident that the private estates of Egypt had grown through the power of protection which a rich or powerful individual was able to offer. The oppression of the tax-collector was partly responsible. The corrupt bureaucracy was no longer controlled by the governor who was without any jurisdiction over the military forces and whose tenure of office was short. The division of the civil and military

[17] See p. 35.
[18] PRG. iii. 8. See Coloni, p. 28.
[19] BGU. 323.
[20] C. Th. xi. 24. 3.

power had led to unexpected results. The duces became more powerful than the civil authority and apparently there was no cooperation between the two branches of the service. Since the military force was small and divided amongst the several provinces, the danger of rebellion was ended, but greater evils developed. The growth of the latifundia in the East imperilled the very life blood of the state if the owners were able to defy the tax-collector. It was presumably this factor which led to the appointment of an imperial commission of three to eliminate the evil.[21] Apparently they had the power to examine land titles and to reclaim for the state those lands which had once belonged to it. This commission was abolished A. D. 415. It is obvious that a commission of three could not have been very effective if they had to examine titles throughout the Orient, and it is quite possible that their powers were limited to Egypt.

The constitution of A. D. 415[22] may be translated as follows: "We decree that all possessors shall discharge their public obligations so that the very name of patron may be considered to be absolutely abolished. Estates however shall remain in the possession of former owners (i. e. prior to 397) provided that they shall without question in future recognize pro rata the public obligations and liturgies (liturgi) which their homologi coloni are known to furnish in accordance with their ancient rating. The metrocomiae shall continue intact under the regulations of public law, and no one shall attempt to possess them or anything in them excepting those who had begun to possess before 397, save their fellow-villagers to whom, in view of their status, some recompense cannot be denied (negari *for* negare). Whoever have gained possession of fertile fields in the villages shall (not) refuse their proportionate share of the liturgies, of the epibole of barren land, and of the taxes therefor. If any of those called homologi by local usage and assigned (adscripti) to abandoned villages have gone over either to other villages or to other masters, they shall be forced to return to their abandoned home, and those who seek to retain them shall be constrained to let them go. If they (i. e. the masters) delay their return, they shall be held liable for their public obligations and shall make restitution to

[21] The date of appointment of this commission is unknown. Since the investigation of all titles of ownership prior to A. D. 397 is prohibited by the constitution, that may be the date of appointment. But it seems unlikely though not impossible that the investigation lasted eighteen years. The commission is curiously reminiscent of the Gracchan land commission. The judicial powers were vested in the Augustalis, and that may explain the delay in accomplishing their mission.

[22] C. Th. xi. 23. 6.

their (former) masters whatever obligations it shall have been established that the latter have discharged (for their coloni). Furthermore if any metrocomiae have become desolate through lapse of time or weakened in resources, let other (villages) out of the number of flourishing communities be nominated to take their place. Whatever fields or estates which the curiales, after recording their desires in the provincial *acta*, have abandoned or permitted others to possess shall continue securely in the possession of those who have maintained their cultivation and who have accepted the public obligations pertaining thereto, nor shall the curiales have any power of recovery. If the venerable churches of Constantinople and Alexandria are proven to have acquired possession of any property prior to the enactment of your illustrious predecessor, we in our respect for religion proclaim that such possession is to be secure, under this condition, however, that the aforesaid churches understand that they must without question discharge in future all obligations which the metrocomiae and the public villages (in which such possessions lie) owe according to the *professio* of the ancient *capitatio*. In vain have public obligations been denied to cephaleotae, irenarchs, logographi of dykes, and other liturgies (?) under any pretext of patrocinium whatsoever, save where carelessness or contempt has led to the omission of these functions which ought to be exacted. If through our generosity any one has won the right to possess metrocomiae, he shall be required to discharge the obligations of (*committere* ?) public villages (attached thereto) also." [23]

By this law it is evident that the emperor attempted to stop the growth of private estates by patronage. The very name of patron was abolished. To this extent the law was successful, for no use of the term appears in papyri after the fourth century. Tenants address their master as δεσπότης or κύριος. When the relation of a proprietor to a village is mentioned, they use διαφέρειν but not ὑπάρχειν. Whether the difference in terminology is due to the law of 415 it is difficult to say. Justinian was evidently not worried by the growth of patrocinium for he repeats only part of the Constitution of 415. He repeats a law of Leo which voided any gift, contract of sale, or

[23] The text of the last two sentences can hardly be correct. Zulueta translates: In vain have the cephaleotae . . . and other liturgists refused the public dues, etc., and omits the last sentence as hopeless. Whether the constitution was limited to Egypt is uncertain. The metrocomiae are unknown in Egypt but familiar in Syria. The cephaleotae are familiar in Egypt, but evidently held a minor liturgy in the village where the comarch and meizon seem to be more important. The logographi chomatum are unknown in papyri but may very well have been responsible for the care of dykes. The repair of the agger publicus in Bithynia (C. J. v. 25. 2) evidently meant the repair of roads.

lease of land whereby the individual sought to secure the protection of powerful proprietors through evasion, and he revived penalties imposed in Egypt twenty years earlier. The tabelliones who prepared these documents were punished by loss of their chattels. From this we may infer that the law of A. D. 415 was still valid and that the growth of estates through patronage was only possible by fictitous contracts of lease or sale.[24]

The growth of private estates through patronage had gone on during the fourth century. This development was checked by vigorous imperial action and all such titles acquired after 397 were voided. The law was evaded by various legal fictions but Leo attempted to stop this practice. Justinian took over his legislation but enacted no further laws on the subject.

To sum up our evidence for the fourth and fifth centuries. At first the private estate could only grow at the expense of the small land owner who clung tenaciously to his holdings and whose allotments were small. Early in the fourth century some sweeping reforms in land tenure were made, the nature of which is imperfectly understood. But the land registers of Hermopolis indicate rather extensive holdings of both private and public land. At the same time the mass of people scattered throughout the village communities seems to have acquired quasi-ownership of former leaseholds and the village communities were in possession of the land which as tenants they had cultivated as crown, hieratic or usiac land. These people, oppressed by the tax-collector, sought protection and appealed to officials of the bureaucracy or military leaders or wealthy and powerful neighbors. In return for this protection, the peasant's land passed into the possession of the latter. This development was checked by imperial legislation though with what success is unknown. In addition the emperor disposed of the imperial estates by grant, by sale, and by emphyteutic leases which became a new form of possession.[25]

The papyri of the fifth century are few and unimportant, revealing nothing of these tendencies. In the sixth century the documentary evidence is much greater, though the geographical distribution is limited to a few areas. From the Fayum we have mostly brief receipts or orders for payment which cannot be dated and which probably come from a few archives. From Syene the archives of a

[24] C. J. xi. 54. 1. Such a lease as P. Lond. 1796 where the owner leases his land to a proprietor and receives it back to work it for him may be such an evasion of the law against patronage. The lease ἐφ' ὅσον χρόνον βούλει or at the will of the owner has been suggested as indicative of patronage, but see Comfort, Aegyptus XIV (1934), 80ff.

[25] See p. 72.

soldier indicate that he was interested in house-property. This form of investment was not overlooked and the rent-collector (ἐνοικιολόγος) was a well known figure. From Aphrodito the archives of the family of Dioscurus yield important documents and it is not impossible that Count Ammonius, himself a proprietor on a small scale, was at one time his agent and kept his accounts. At Oxyrhynchus the family of Apion may be traced for more than a century and a number of documents have been recovered from their archives.[26] From the Delta no evidence has as yet been found. But presumably conditions prevailing at Oxyrhynchus and Aphrodito reveal the general tendency throughout Egypt to concentrate ownership. The analysis of some of the more important documents will to some extent illustrate this development.

The accounts of Ammonius come from about the middle of the sixth century.[27] His property lay partly within the village of Aphrodito, which enjoyed the privilege of *autopragia*, and partly within the territory of Antaeopolis (*τὰ κωμητικά*, and *τὰ ἀστικὰ κτήματα*). Apparently the major portion of his property was leased from the monastery of Aphrodito and sublet to others.

The accounts of the 8th indiction (Cairo 67138) seem to work out as follows:

Tenant	Rent to Monastery	Pd. to Ammonius	Tax
Agnaton	193 artabas	42 artabas	50⅔ artabas
Phoebammon Capros	23	—	20
Pecysis	25	—	—
Tsenvictora	72	—	16⅔
Heraclius	43	8	—
John	40	—	—
Bessous	7	8	—
Phoebammon Thakore	—	25¼	—
Phib	—	18¼	—
Enoch Cholos	—	27¼	16⅔
Joseph	—	60	—
Farmers of Peto	—	106⅔	32
Cholos	—	4	—
Enoch Pankam	—	42	20
Talos	—	—	16⅔
Papnouthes	—	—	25⅔
Total	403	341 5/12	198⅓

[26] Hardy, Large Estates, 25ff.

[27] Count Menas was agent of Apion at Oxyrhynchus and the pronoetes on the estates

Supplementary payments to Ammonius were 55 art. of wheat and 2½ art, of barley. This gives a total of receipts amounting to about 1,000 artabas of which nearly half went in rentals to the monastery, a fifth in taxes, and of the amount actually paid into the granary, 78 were paid out in various expenses, 118 went to Dioscurus, and allowances to four men of 91 artabas should leave a balance of 54 artabas which at the current price represented an income of 2¼ solidi for the year. No account is taken of Ammonius' personal taxes or expenses, and the general impression is that the estate was running on a very slender margin. The accounts for the other three years add little more information. The contribution of 190 artabas of wheat to the monastery of Metanoia in the 9th indiction was apparently in lieu of taxes and not an additional expense which would have definitely created a deficit. There is no way of estimating the size of the estate. A contemporary tax-account of Antaeopolis shows that the tax on arable land was 1¼ artabas per aroura. The tenants on monastic property paid 87⅓ artabas in tax, the remaining tenants paid 101 artabas. On the basis of 1¼ artabas per aroura, the whole estate was about 150 arouras, and of this the land leased from the monastery was about 70 arouras, leaving a balance of about 80 arouras owned or leased by Ammonius.[28]

At Oxyrhynchus the history of the Apion family can be traced as landowners from the end of the fifth century down to and into the Arab period. Many documents are preserved from their archives, but there is no way of determining the size of the estate at any one period during these 150 years. These accounts are mostly fragmentary or undated and apparently none gives a summary of the estate as a whole. We give below four documents which the editors suggest as lists of Apion's holdings. All belong to the sixth century:

P. IAND. 51	P.O. 2207	P.O. 998	P.O. 2031
1.	Apelles		
2. Artokopium	Artokopium		Artokopium (?) l.
3. Aspidas	Aspidas		
4. Evangelius	Evangelius	Evangelius	
5. Kathegetes	Ktesias	Ibion	Ibion
6. Leonidas	Leon	Lucius	Kerkeuris
7. Maiuma	Matreus	Melita	Kalybe

also held the rank of count (P.O. 2195, 77). Possibly Count Ammonius was agent of Dioscurus. The accounts of four indictions are preserved in P. Cairo 67138-9. See also 67140².

[28] This is in accord with the evidence of P. Cairo 67140² which gives the census as taken by John as 72 ar. of arable land, 6¾ ar. of garden, one ar. each in reeds and in vines.

P Land. 51	P.O. 2207	P.O. 998	P.O. 2031
8. Meskanounis	Meskanounis	Meskanounis	Meskanounis
9. Megale Parorius	Megale Parorius	Nekonthis	Mega Chorion
10. Mega Chorion	Megas Ruchis	Nesos Lachanias	Nesos Lachanias
11.		Nesos Leucadia	
12.	Neos, Netneus		Nekonthis
13. Nike	Nike	Niketas	Niketas
14. Ophis	Orthonius	Ostrakinus	Orthonius
15. Panguleius		Panguleius	Panguleius
16. Patrimonial (ia)	Pakerke	Pakerke	Papsau
17. Parthenias	Piae	Palosis	Parthenias
18. Petronius	Petronius	Sipho	Petronius
19.	Polemo		Polemo
20. Skapha		Stephanion	South Parorion
21. Skytalis	Skytalis	Skelos	
22. Takona	Takona	Takona	
23.	Tholthius		
24. Tampeti	Tampeti	Tampeti	
25. Terythis	Terythis	Terythis	Terythis
26. Trigos		Tarutsebt, Tillon	
27.		Thunis, Theagenes	
28. Phakra	Phatemet, Psemekla Three other fragmentary and three erased		Artokopium (?) l. 8 (possibly six oothers)

The editors of these documents have ascribed them to the Apion archives on the ground that all have some so-called Apion villages on the list. Yet there are only two villages common to all four lists. Of these Meskanounis contained imperial property and Terythis was at one time largely controlled by the "house" of Anianus.[29] Too much stress must not be placed on the writers of documents who state that such and such a village or steading "belongs" (διαφέρει) to Apion's house. It is evident that Apion's estate was widely extended, some times one or two farms in a particular district, some times more, but there were other estates with holdings in the same district. We can affirm with certainty that certain farms (ἐδάφη, μηχαναί, κτήματα) belonged to the estate at times during a range of one hundred and fifty years. Thus documents come from an Apion archive which are contracts with tenants, loans, or the provision of parts of mills or irrigating machinery. Others are contracts whereby one person guarantees the continuance of a tenant

[29] P.O. 1915, 2056.

in his leasehold, and others of miscellaneous nature.[30] Some of the districts mentioned in these documents do not appear in the accounts which come from Apion's archives. Those accounts which can be ascribed to Apion with absolute certainty are comparatively few.[31] Unfortunately the reports of the pronoetae are often incomplete, and so far as we know no complete summary of the income of Apion from his landed estates in Oxyrhynchus has yet been identified with any degree of certainty.

Before making any estimate of Apion's holdings, an examination of his accounts may be instructive. The earliest dated account is probably P.O. 1911 (A. D. 557) and it is a report of various farms in Apelles, Taruthinus, Tregeus, Antas, Cissonus, Cotyleus, Tarutsebt, Netneus, Lucius and the Leucadian Island. It is quite clear that no single overseer could collect these revenues if these were villages or even sizable steadings. Receipts were given first for arable land or gardens (vineyards), then rentals of bakeries, or other property, and payments were in grain and money, usually reckoned in terms of gold. The expenses usually begin with small payments to the local churches, the salary of the pronoetes, payments for mason work, rebates to tenants, cost of replacing parts of sakiyehs, or cattle lost by disease, and taxes. The final column shows the total of receipts and payments which normally balance. This is the summary of P.O. 1911 (fractions omitted):

Receipts	1535 artabas of wheat	647 solidi
Payments	(1515)[32] " " "	140 "
Balance	20 " " "	507 "

Of this balance the 20 artabas of wheat were sold to the embolator and nothing is recorded of the price (probably 1 solidus). The balance in money (after transferring 4 solidi to the credit of another pronoetes) was paid in various installments to Anastasius the banker of the estate. In the payments of grain the largest item was a payment of a thousand artabas to the monastery of Abba Andreas,

[30] P.O. 130, 134-7, 139, 192, 194, 202, 996, 1896, 1979, 1981-1991; P. Iand. 48; PSI. 58, 60-2; P. Lond. 774-5, 777-8.

[31] These certainly belong to Apion; P.O. 196, 999, 1911, 1914, 2019, 2195, 2196 (cf. 136), 2204; PSI. 953. Also P.O. 1914 and 1915 belong together. The latter deals with an imperial estate, but Grenfell and Hunt believe that it was managed by Apion's agent for a time. If references to "our master the consul" mean Apion, we should include P.O. 1913 (with its *verso* 2037) and 1917 though the system of bookkeeping is different from other Apion accounts. P.O. 1910 has Apion's name scribbled on the back but the bookkeeping is again different. PSI. 954 and P.O. 1912 are probably from Apion's archives.

[32] The scribe entered 1214 artabas which is clearly a mistake.

which was said to be in lieu of a " customary " payment of 50 solidi. This payment seems to be in lieu of taxes in kind for none were recorded from this property. Similarly, Ammonius at Aphrodito paid his usual tax of 190 artabas to the monastery of Metanoia.[33] In this and other Apion records the receipts in grain seem to go entirely to the tax-collector. Whether the payments made to the banker were solely for taxes, it is impossible to say.

A second account approximately twenty years later follows the same plan.[34] This covers Apion's holdings in Evangelius, Tillon, Nekonthis, Aroure, New Steading near Talaos, Tanchis and Syphis, Amox, Eros, and Sinaru. In some of these districts there were only one or two tenants. At Sinaru the payments of seven tenants were in dispute and a certain rebate was allowed to each. This is the summary (fractions omitted):

Receipts of προστασία (No. 1)	3,551	artabas	wheat	315	solidi
Payments	4,086	"	"	88	"
Receipts of δίκαιον of Cephalas	734	"	"	43	"
Payments	68	"	"	6	"

Here the largest item in the payments was 3,585 artabas for taxes, and if the revenue of the δίκαιον of Cephalas had not been brought in to supplement the account of the first pronoetes there would have been a deficit.[35] This was due to extensive rebates. However, by adding the income from the δίκαιον of Cephalas there was a balance of 200 artabas which was granted by the owner to the tenants of Evangelius and other districts. The balance in money was paid to the banker and its ultimate disposition is unknown.

In this document we have evidence which may give some idea of the area of the *pronoesia* or *prostasia*. The assessment on nine out of twelve and a half arouras was three and a half artabas per aroura (line 37). In a case of rebate on three arouras of unflooded land, the rate was four and a half artabas per aroura (line 95). If the average rate was four artabas per aroura, this section had about 900 ar.[36] It may be noted that the proportion of receipts in grain and money differ greatly in P.O. 1911 and 2195.

[33] This was " customary " in the sense that custom demanded such payments periodically, but not necessarily annually. Ammonius paid it once in the four years covered by his accounts.

[34] P.O. 2195, A.D. 577.

[35] This document is interesting in that it combines the report of two pronoetae. The δίκαιον of Cephalas did not pay any tax, but it made up the deficit for the other pronoetes.

[36] At Antaeopolis the tax on land was 1¼ art. per ar. (P. Cairo 67057), but the rate may well have advanced since that time.

The account of the year 586 is unfortunately incomplete and evidently only a preliminary draft.[37] However, it is of interest because the pronoetes, Serenus, applied for this particular post three years earlier.[38] The total receipts amounted to 1,201 artabas of wheat and 255 solidi. On the basis of an average assessment of four artabas per aroura, his province was about 300 ar.

A somewhat fragmentary account, said to belong to the late sixth century, may represent the last known Apion account.[39] There is no direct evidence to prove that it belongs to this archive, but the system of bookkeeping is similar, if we except the fact that there seems to be a balance left at the end, and in some of the districts it is known that the family had possessions at some time or other. This is an approximate summary (fractions omitted):

Receipts	3,941 artabas of wheat	410 (?) solidi
Expenditures	3,518 (?) " " "	106 (?) "
Balance	423 (?) " " "	40 (?) "

The total of receipts in wheat is definite. The summary of rebates and payments gives a total of 3,452 artabas with some supplementary items in Col. XI which cannot be determined exactly. The last line of this column seems to give two balances, one of 423, another of 362 artabas; one of 40, another of 50 solidi. The readings of the accounts in money are hopelessly confused. The chief item of expense, a shipment of grain to Alexandria of 2,025 artabas, was clearly for the *embole*; another shipment of over 900 artabas is not clearly determined. It may have been a " donation " for the monastery of Metanoia or for Alexandrian churches.

These documents give only a cross section of Apion's holdings. There seems no way to determine how extensive his holdings were at any particular time. This can be said with certainty, that no matter how widely extended these holdings, there is no direct evidence in the accounts at any time that whole villages were under the patrocinium of Apion.[40] At one time the " noble house " was rather insignificant. For example, the payments to the arcaria in P.O. 2020 totalled 15,688 artabas of barley. Of this amount the imperial estate paid 3,490 artabas, the church 1,541, and the " noble

[37] P.O. 2196.
[38] P.O. 136.
[39] P.O. 1912.
[40] When a tenant applied for a favor, he need not be taken literally when he says that a steading " belongs " (διαφέρει) to Apion. Even when Apion is pagarch, there is no proof that the village belongs to him (P.O. 133, 139).

house" 76½ artabas. Of the other contributors seventeen exceeded the payment of Apion's estate.[41] On the other hand, the accounts show that Apion paid heavy taxes in wheat. One account gives the receipts from the villages as 162,313 artabas, and the receipts for the προσφοραὶ Ἀλεξανδρείας as 18,512 solidi.[42] Possibly contemporary with this document is P.O. 127 R. which gives as payments of the "noble house" at Oxyrhynchus 87,818½ artabas and for the same at Cynopolis 52,800 artabas.[43] There is no way of telling whether the payments in P.O. 1906 represent the taxes paid by an estate or by the nome.[44] If they come from private archives, they represent estates of some magnitude.

Before leaving the discussion of the extent of Apion's property we should not overlook his interest in wine growing. This was an important source of revenue for those who had the necessary capital to invest in the development of vineyards. It is clear from PSI. 953, where his steward dispensed over 35 thousand dipla in the course of a year to his household and others, that his vineyards must have been fairly extensive. A group of partners on one of his vineyards agree to deliver 24,000 sestarii of wine annually to his cellars.[45] Doubtless there were many such vineyards and the κοινὸν τῶν ἀμπελουργῶν appears in several accounts. Probably no great extent of vineyard was sufficient to yield a good income.[46]

An account of arrears at Heracleopolis is ascribed to Apion on the assumption that "our master the most magnificent consul" is identical with Flavius Apion II, consul in A. D. 539.[47]

A single account is preserved from the archives of Christodora of Cynopolis.[48] The statement of taxes is as follows (fractions omitted):

[41] Perhaps too much stress should not be placed on this payment. In the accounts of the pronoetae of Apion, barley is rarely mentioned and was evidently of slight importance.

[42] P.O. 2196 verso. Whether this is a summary of the taxes of the estate or of the entire pagarchy cannot be determined.

[43] Grenfell & Hunt regarded these payments as the taxes of Oxyrhynchus, here called the "noble house." The chief objection to this theory is that the house of Apion is regularly designated in this way and the municipality never.

[44] For taxes paid by Oxyrhynchus see p. 286.

[45] P.O. 1896. An account of sour wine from "Apion" villages may represent the yield of his estate (P.O. 2044). In some of the accounts where payments from a particular steading are in money rather than in wheat, vineyards or garden lands of some kind may be the chief source of income there.

[46] The tax-rolls from Caranis show that many held very small holdings of vineyard or gardens. They probably had other lands in wheat.

[47] P.O. 1917. The system of accounting is different from that in other documents from Apion's archives, but this may be due to the fact that arrears are dealt with. The amount of arrears, 1867 artabas and 319 solidi, indicates an estate of considerable size.

[48] P.O. 2026 said to belong to the early sixth century.

For the canon of the 1st indiction . .	9,930 artabas		
Advance payments for the 2nd indiction	20,248 "		
Naulage (?)	90 "		
TOTAL		30,268 artabas	
Supplement of 1% (actually 20%) .		6,053	"
Private (?) expenses of the 15th indiction	4,217 "		
Supplement of 1% (actually 15%)	632 "		
TOTAL		4,849	"
GRAND TOTAL		41,170	"
Of this total a third is . . .		13.723	"

Whatever the interpretation of this document, the estate must have been of considerable importance. Possibly Christodora had a third interest in it.

The most informative farm account of the Byzantine period yet discovered not only covers a period of four years (indictions 8-11) but gives the statement of profit, and although the mistress Theodora died sometime during the ninth indiction (Col. X, ll. 211-2), the pronoetes gave the final settlement of the estate at the close of the eleventh indiction.[49] Theodora owned what is called the *dorea* of Protamus which lay in the village of Pesla of Hermopolis, and an additional estate, probably in the village of Thalmoon, which after her death is called the *πρόσοδος τῆς μακαρίας Θεοδώρας*.[50] For some unknown reason the profits were not divided until two years after her death. Both the income and the taxes for this period of four years were fixed. This too, in spite of the fact that there was a serious failure of the Nile flood in the 11th indiction. In that year the owners made very generous rebates to their tenants, in some cases amounting to the entire rental. One of the properties actually had a deficit. Theodora was evidently spending considerable money in bringing in a new vineyard, and in addition aided her tenants by rebates, equipment such as wine jars, axles, reeds, etc. She had pensioned one of her servants who received an annuity of 10 artabas of wheat and 12 pints of oil. If this estate is typical, the lot of the tenants and members of the household was by no means unpleasant.

[49] P. Baden 95. Dated in the seventh century but is possibly earlier and seems to antedate the Persian and Arabic conquest.

[50] The income from the entire estate for the 8th and 9th indictions and the income of the *πρόσοδος* for the 10th and 11th indictions were divided equally among her three sons (Col. xxiv). The income from the *dorea* for the 10th and 11th indictions (Col. xii-xvii) was divided so that half went to Germanus, and a quarter to each of his two younger brothers. These amounts added together give the final settlement in lines 540-9.

The income from the combined estate was, with one unexplained exception, fixed at 1,010 artabas of wheat and 109 artabas of barley yearly.[51] The taxes were also fixed for the period. The public taxes (δημόσια) of Hermopolis were 112 artabas of wheat (104 artabas and a supplement of 8 artabas) which were paid on her property apart from the *dorea*. The latter paid 74 artabas as the public taxes of Pesla, without any supplement or any charge for naulage. The apaetetes of Hermopolis also collected 108 artabas yearly, probably as a military requisition. The tax in kind was approximately 29% of the total income in wheat.

The income in money was 222 solidi, but the farm of Onianiscus, probably a vineyard, was reckoned separately (line 155) although it was part of the *dorea* of Protamus. This income remained unchanged through the four years, but it is the theoretical, not the actual, income since rebates were made in many cases. It is significant that the taxes in money were proportionately much lighter than those in kind:

Public taxes for the dorea of Protamus	6 s. 18 c.
Public taxes for the property of Theodora	13 s. less $1\frac{3}{4}$ c.

The total is 19 solidi $16\frac{1}{4}$ carats or approximately 8.8% of the receipts.[52]

The income of the estate for four years was 4,034 artabas of wheat and 438 of barley. The expenses, which include taxes, rebates, food allowances, etc., were 2,649 art. wh. and 321 art. of barley, leaving a net balance 1,385 of wheat and 117 art. of barley. The usual practice of the accountant was to enter the value of the balance of wheat remaining at the end of the year at $1\frac{1}{2}$ c. and barley at $1\frac{1}{3}$ c. per art.[53] This would give a value of 86 s. 13 c. for the wheat and 5 s. 20 c. for barley, or an average profit of 23 s. 2 c. per year. The total income in money for the four years was 842 s. 21 c. while the total expenses, including taxes, improvements, repairs, supplies, and rebates, were 453 s. 12 c. leaving a profit of 389 s. 9 c. or an average of 97 s. 8 c. yearly. Thus for the four-year period the annual profit

[51] In the ninth indiction the receipts of wheat were 1002 artabas. Fractions are omitted here. The receipts are evidently nominal. When the flood was poor, the books were balanced by crediting rebates to the tenants.

[52] The tax in money seems to be based on the land. There is no evidence of any head tax assessed on the tenants or slaves employed in the household. The *dorea* paid neither supplement nor naulage for grain nor did the apaetetes make any requisition for barley. Apparently as an imperial grant, the *dorea* enjoyed certain immunities. The fact that the tax was fixed for the whole period may imply that the grant was a sort of emphyteutic lease.

[53] After the death of Theodora this was not done for the *dorea*.

of the estate, as indicated by this account, was 120 s. 10 c. Theodora left three heirs. Had the property been divided equally between them, their share would have been 40 s. 3 c. each.[54]

The combined estate of Theodora could not have been very large. Assuming an average tax of four artabas per aroura for land in grain, the total area in cereal culture could not be more than 225 arouras. The area in vineyard or garden from which rental in money was derived cannot be estimated. There seems to be no way to account for the fact that the pronoetes does not make any entry for his own salary, unless this work was done by one of the sons.[55]

Before leaving the subject of the private estate in Egypt, we may consider some aspects of the organization and system of accounting used.

For the accounting practice the starting point should be the important document found in P.O. 136 where Serenus, deacon of the great church at Oxyrhynchus applied to Apion for the post of pronoetes on one of his smaller estates. The translation of Grenfell and Hunt is as follows:

The terms of the agreement are (11 sqq.):

"I, Serenus, deacon, principal party to the contract, of my own free will and deliberate choice agree that I have made a contract with your magnificence through your representatives for one year reckoned from the arrears of money payments of the present first indiction and that of the crops and money payments and revenues of the coming (D. V.) second indiction; in which contract I undertake to fill the post of your administrator or steward in the management of the estate of Matreus and your property in and adjacent to the villages of Episemus and Adaeus. I undertake to conduct my dealings with the labourers responsible to me both upon the estate and in the villages and adjacent property in accordance with the requirements notified to me by the worshipful secretaries of your honoured house, so as to collect and pay to your magnificence or to your representatives all that is due, namely, the corn to the official controller of the boats of your honoured house and the money to

[54] See note 50.

[55] Those employed on the *dorea* received food and clothing (*βεστίων*), while those employed at Thalmoon seem to have had only an allowance of grain. An allowance of money (Lines 316-22, 375-78) was probably a commutation for clothing. Thus 8 solidi were allowed for clothing on the whole estate for the first two years. In the 10th indiction the slaves of the *dorea* received 35 c. while those on the rest of the property were allowed 6 solidi 13 carats, making a total of 8 solidi. The allowance of cereals was one-third barley and two-thirds wheat. In all other records barley is used only for animals. No distribution of wine or oil was made to any one on the estate.

the most illustrious banker of your said honoured house, in correspondence with the receipts and cheques issued by me to all the labourers under my charge, and in agreement with the performance of my duties, and the method of collection adopted by me. And if any deficiency (?) should occur on the estates aforesaid, I am to make it good (?) and it shall be credited to your magnificence in my accounts; and I will gain and collect and pay to the aforesaid owner's account all the dues in full from the outlying properties. I agree further to gain for your magnificence, as compensation for the measure used in receiving payments, fifteen extra artabae on every hundred. I have also contracted and agreed to give to the honoured house of your magnificence the twelve Alexandrian solidi usually paid as a consideration for the said administration; and to accept the same amount of victuals as the administrator before me. I will render accounts of all my stewardship both of receipt and expenditure, and I will make up deficiencies when the accounts are balanced if the comparison of my receipts and cheques as aforesaid shows me to be in arrears. I, Victor, surety, do further agree to become surety and bail for the aforesaid Serenus, deacon and administrator, in the discharge and fulfillment of his stewardship; and if he is shown to be in arrears in comparison with his cheques and receipts, to discharge the debt and satisfy your magnificence out of my own private means, renouncing the privilege of sureties, and contrary to the new ordinance issued about sureties and persons accepting responsibility.[56] We both pledge for the observance of this contract all our property present and future, whether held by ourselves or our families, to be security and to serve as a pledge. The contract, of which two copies are made, is valid, and in reply to the formal question we have given our consent."

(Signatures)

This contract implies that Serenus received from the chartularius of the estate the schedule of assessments which he was to follow. If we may judge from P. Baden 95, the schedule was fixed for a period of at least four years and may have been longer. This schedule was the τύπος which might be revised annually for special reasons.[57] This τύπος probably takes its name from the imperial διατύπωσις. Although no contracts are preserved between Apion and

[56] See SB. 8029 (A.D. 539) where the pronoetes by a separate contract releases his surety from any obligation. Cf. P.O. 125, A.D. 560.

[57] So in P.O. 1911, lines 98, 143, special arrangements were to be made because of damages caused by bursting of embankments during the flood season. See also P.O. 2195, lines 110ff.

his tenants, the leases seem to be a matter of agreement and not a master and serf arrangement.[58] Thus the assessments of seven tenants of Sinaru were in dispute in the 11th indiction and rebates were allowed accordingly.[59]

The editors translate the clause dealing with ἔχθεσις with some hesitation. The pronoetes, receiving a salary of 24 artabas of wheat and 2 solidi less 5 carats, was not in any position to make up arrears,[60] and the meaning of ἀποσυμβιβάσαι as making up deficiencies seems rather forced. In the accounts the receipts from the tenants are given according to the τύπος, but in bad years there were frequent rebates and sometimes there was an actual deficit for the owner. This was not made up by the pronoetes, but was in one case made good by drawing on a balance from another district.[61] Apparently the function of Serenus was, in case of deficiencies, to enter these as rebates in order to balance his accounts, and from this record the chartularius would presumably determine whether the rebate was legitimate or whether it would be considered as arrears to be collected. There is incidentally no evidence in the annual accounts that the pronoetes was concerned in the collection of arrears.[62]

The clause dealing with the profit of the proprietor is noteworthy: "I agree further to gain for your magnificence as compensation, fifteen artabas on every hundred measures of the receiving measure (τὸ παραλημπτικὸν μέτρον).[63] The interesting feature of the Apion accounts is that receipts are usually in the receiving measure of 46 choenices and payments are made in the chancery measure of 40 choenices. Conversion from one to the other is frequently made in the accounts "at the rate of 15%" (ἐκ ἑκατοστῶν ιε΄). This might lead to the inference that the difference between the receiving measure and the chancery measure was the παραμυθία or compensation of the owner, especially since few of the accounts show any profit to

[58] The leases are a subject of complaint by some unknown writer (P.O. 1868). P.O. 1126 is a free lease by a tenant on a large estate. Possibly the τύπος of P.O. 1829 refers to the schedule of rents. Cf. P. Leipz. 64; P.O. 1460.

[59] P.O. 2195, lines 111ff. Some of the leases were made by partners and the large rentals paid by some of the tenants in this document imply that leasing of land was a profitable business in which men of some capital were willing to engage.

[60] See note 56 for evasion of responsibility by surety. Whether the pronoetes exacted his commission of two carats per solidus on payments in money or whether this went to the landlord where he had *autopragia* cannot be determined. In P.O. 1915 the collection of taxes on imperial property (?) gave a fee of 1½ c. per solidus of which 7/8 c. went to the proprietor and 5/8 c. went to the pronoetes.

[61] P.O. 2195.

[62] Such a record of arrears seems to be preserved in P.O. 2032, but it does not make clear how they were collected. See also P.O. 1917.

[63] This is somewhat different from the rendering given by Grenfell and Hunt.

the estate in cereals.[64] However, this difference in measures does not appear to be profit, but merely a conversion from one system to another. Thus in P.O. 2195, 74ff., the following calculations are given: Receipts in (receiving measure) 2819½ artabas and one choenix which, at 15%, make by chancery measure 3,242 artabas 27 choenices. In addition there were receipts in chancery measure of 765 artabas 27 choenices, making a total of 4,008 artabas 16 choenices (should be 14 ch.). Of this amount 456 artabas 28 choenices were credited to another *pronoesia*. Rebates and payments for charities and salaries totalled 500 artabas 37 choenices. Taxes were 3,585 artabas 19 choenices. Thus the payments came to 4,086 artabas 26 choenices, making a deficit of 535 artabas. This was eliminated by transferring 735 artabas from another account, and the 200 artabas remaining were granted to various tenants. Neither here nor in any other reports of the pronoetae is there any indication of profit from the fifteen percent difference between the chancery and receiving measure.[65]

Serenus further promised to pay his master 12 solidi in Alexandrian standard, which amount is said to be paid according to custom. No trace of such payments appears in the accounts.[66]

The compensation which Serenus asked was the customary salary. This was apparently fixed at this time as 24 artabas of wheat and two solidi less five carats.[67] For a man with a family to support and the training necessary to keep accounts, this was hardly a living wage. He may have received the fee for collection after deducting 12 solidi for his master.[68] No mention of such commission is suggested in his application, unless it was considered a part of the *opsonion*. If so, it does not appear as such in the accounts.

From the contract of Serenus we might infer that the owner of the estate received 15% profit in cereals, and a lump sum of 12 solidi from the *pronoesia*. From the accounts themselves as preserved, Apion apparently received no profit from his revenue in kind. The

[64] In P.O. 1906, there was a profit of 20,858¾ artabas after the taxes were paid.

[65] For the calculations in P.O. 1906 see the commentary of the editors.

[66] Whether this sum came from his fee of two carats per solidus is unknown. It could not come from his meagre salary. When Serenus prepared his accounts three years later (P.O. 2196) the receipts were given as 239 solidi *σὺν ῥοπῇ* and 16 solidi *ἑκτὸς ῥοπῆς*. If he collected the usual fee for weighing as well as the two carats per solidus he could pay the landlord 12 solidi and have a fair supplement in addition. It may be noted that in P.O. 2195 there was a similar sum of 16 solidi *ἑκτὸς ῥοπῆς*. Was this a fixed charge in every *pronoesia*?

[67] See P.O. 2195, line 89. For a division of fees see P.O. 1915.

[68] See note 66.

only income in money was paid to the banker, but how much of these sums went for taxes is unknown.

Facing such a condition as this, the question arises as to why Apion should continue to be concerned in landholding if it was little more than a charitable organization. Does the report rendered by the pronoetes represent the entire income from the estate or is he, as has been suggested, solely a tax-collector?[69] The *pronoesia* of the estate of Theodora at Hermopolis was certainly not concerned solely with taxes but with the entire revenue of the estate.[70] Here there was no record of payment for salary, and the pronoetes must either be a slave or one of the sons of Theodora. The accounts of the Oxyrhynchite pronoetes show that he pays church dues, salaries of foremen and masons, the cost of wine jars, replacements of cattle and of parts of mills and irrigating machinery. While the various rebates to tenants may be regarded as part of a reduction of taxes, and church dues may be a tax, the other items can hardly be regarded as deductions allowable for tax purposes. Moreover, in the receipts there are various φόροι (ferries, bakery, oil mill, pigeon cote, and the like). Here we are faced with the problem of determining the meaning of φόρος. Does it mean rental or tax? Gelzer cites the δημόσιοι φόροι to support the latter interpretation, but there are cases where it means rental, and it seems difficult to determine the meaning in Apion's accounts.[71] On the whole it seems more likely that the pronoetes received the entire income of his particular province and the payments recorded are the actual rents paid by the tenants and these include taxes.

If this conclusion is accepted, the tenant on the estates of which we have record was by no means in an unfavorable position. If the average rental including tax was $3\frac{1}{2}$-$4\frac{1}{2}$ artabas per ar., his position had not changed materially during the course of six hundred years of Roman rule.[72] Moreover, the landlord gave generous rebates in years of poor harvests, provided him with cattle and parts of irrigation machinery, paid for necessary repairs to cisterns and afforded other assistance. On some of the estates the collections in money

[69] Gelzer, Studien. 87.

[70] P. Baden 95, *supra* p. 56.

[71] Studien, p. 84. The meaning of φόρος varies. It seems to be used as a synonym for rent (ἐνοίκιον) in the lease of a mill (P.O. 1890). The φόροι and ἐνοίκια are classified as revenue (πρόσοδος) in P.O. 1917, verso, 96ff. The same document (l. 126) has the entry ἐξαγμὸς ἐκφορίων οὐσίας τοῦ δεσπότου μου, and evidently this steward regarded his function as a collector of revenue and not solely of taxes. The φόροι of Theodora went into the income of the estate and were certainly not taxes.

[72] *Supra*, p. 53. See also p. 280.

run rather high. This may be due to garden lands or vineyards whose rental was usually paid in money.

The administration of the estate in the sixth century may be presented as a kind of composite picture. One large estate was divided into two dioceses each administered by a count.[73] Under each count were ten pronoetae. Apion had Menas as his agent (*οἰκέτης*) and there were on the central staff a chartularius, a banker, scholasticus, a measurer of grain, a butler who handled the distribution of wine, and a ship captain.[74] On some properties there were regularly employed foremen (*ἐργοδιῶκται*),[75] *φροντισταί*, masons, and field guards. The province of the pronoetes in Oxyrhynchus is called *προστασία*; in Heracleopolis the *φροντιστής* takes the place of the *προνοητής* and his province is called the *φροντίς*.[76] At Oxyrhynchus the *φροντιστής* is sometimes the leader of a group of partners, as of a *κοινόν* of vine-workers in charge of a vineyard.[77] The pronoetes of church property provided himself with a clerk.[78]

The *προστασία* covers certain districts, probably within the same geographic orbit, and may consist of tenancies in a dozen or more *ἐποίκια*.[79] The divisions of a *prostasia* are called *κτήματα*, *μηχαναί* (probably because they had sakiyehs), and *ἐδάφη*.[80] Very rarely is the use of *κλῆρος* or *τόπος* found in the sixth century. Some parts of the estate are called *αὐτουργίαι*. Thus in P.O. 1911 there are lists of *ἐδάφη* under the headings *ἐν αὐτουργίᾳ δικαίου τοῦ κτήματος Ταρουτσέβτ* and *ἐν αὐτουργίᾳ δικαίου τοῦ κτήματος Λουκίου* for which rebates were made. Some of the *ἐδάφη* were cultivated in the name of so and so, while two are described as "once cultivated in the name of so and so." Some rebates were made *ὑπὲρ ὀνόματος τοῦ δεῖνος*. Since the rebates were in money and not in grain, it is

[73] P.O. 2031.

[74] Two chartularii in P.O. 1911. The banker in the sixth century is the treasurer of the estate and receipts in money were deposited with him. The office was combined with the chartularius in P.O. 2195. The scholasticus is found in P.O. 1913. The sitometres of P.O. 2195 may be a public official. The dispenser of wine (PSI. 953) evidently received a percentage of the wine distributed.

[75] The *ἐργοδιῶκται* evidently acted as foreman on the part of the estate worked directly by the owner (*αὐτουργία*). Whether the tenants gave a certain amount of labor to the landlord is unknown.

[76] P.O. 1917.

[77] P.O. 1896.

[78] P.O. 1894.

[79] P.O. 2195.

[80] The *ἔδαφος* in P.O. 1911 paid in money and the rebates allowed were in money and not in kind, and was probably a vineyard or garden-land. A *μηχανή* could also be part of an *ἔδαφος* (*ibid.*, line 136), but it is not easy to distinguish the various terms, as for example, *ibid.*, l. 121; *δικαίου τοῦ κτήματος καλουμένου ἐδάφους Σεύθου*.

possible that they were for vineyards or gardens. In two cases grass seed was purchased for the γεουχικὴ αὐτουργία and this land was presumably in rest crop for the year.[81] The great estate (οὐσία μεγάλη) appears in some documents which probably implies some central property but of this no details are known.[82] Somewhat more perplexing is the use of δίκαιον in the accounts. Sometimes it seems to describe the bailiwick of a particular pronoetes,[83] or even the particular divisions or ἐποίκια of a protasia,[84] but the δίκαιον τοῖς τεταρτομοιρίταις, the δίκαιον of Diogenes, and of Cephalas seem to be different.[85] The last of these seems to have been administered by a special pronoetes and seemingly paid no tax. This may have been a special grant of the Emperor like the *dorea* of Protamus at Hermopolis.[86] Still more obscure is the δίκαιον ἀντικαταλλαγῆς τοῦ δεῖνος found at Heracleopolis.[87] The phrase is not found elsewhere. It may imply that the owner of this estate collected the rents for some of his friends who may have owned small allotments contiguous to his estate. Grenfell and Hunt suggest that Apion may have collected revenues from imperial estates.[88]

Tenancies were held by individuals or by groups in partnership; and some evidently descended in hereditary succession.[89] There was no limitation to their place of origin and tenants from one district held leases in another. Apparently the tenants of the estate whose leasehold lies in a particular steading (ἐποίκιον or κτῆμα) shared some sort of mutual liability for the rental.[90] As a κοινόν they paid assessments for ἀπότακτα χώρια and ἐκτάκτη τρύγη, apparently arable lands and vineyards which lacked tenants, or an epibole. In P.O. 2195 a vineyard seems to be abandoned for grain.[91] While the position of tenants, so far as rentals are concerned, seems to be favorable, there are signs that conditions were not all that they might seem. Apion had a large number of prisoners in his private prison.[92]

[81] P.O. 1911, 1913.

[82] P.O. 1911, 1916, 2024. This was probably worked directly by the proprietor.

[83] As in P.O. 1911, line 110.

[84] P.O. 1911, lines 107, 116. The accountant was careful to state that rebates made to tenants who came from other villages were charged to the particular property which they cultivated (*ibid.* 123).

[85] Cf. P.O. 1910, 2195.

[86] *Supra*, p. 56.

[87] P.O. 1917.

[88] P.O. 1915. The tax was in money and not in kind.

[89] PSI. 58. Payments were often made by the heirs who took over the lease of the deceased. See SPP. xx. 88 (A. D. 337) for a claim to hereditary leaseholds.

[90] See p. 153.

[91] Line 17, where 3 artabas of wheat and a certain amount of gold and denarii were paid.

[92] PSI. 953.

Another landlord held sixteen men at Terythis, one a village official, another a former μειζότερος, and several guards.[93] The flight of tenants is not unknown, and evidently conditions were not always favorable.[94] Since rents were not any worse than in Roman times and taxes do not seem to be high for the tenant class, we can only conjecture the reasons for discontent. In the Western Empire the colonus gave to the seignorial demesne a large part of his time and labor. For this we have slight evidence in Egypt,[95] but the αὐτουργίαι of Apion probably took the place of the baronial demesne of the West, and work on embankments, cleaning canals, and constant irrigation probably combined to make the life of tenants more and more difficult.[96]

If we may judge from the tax returns of the sixth century, the estates of Apion, Olybrius, Menas, and Christodora may be definitely described as large estates.[97] Apion and Olybrius were consulars at Constantinople, Menas was catholicus, and Christodora presumably was the widow of some proprietor whose name is unknown. Doubtless there were other landed proprietors (γεοῦχοι) of whom we know nothing, though Justinian complained of their power in the preamble to Edict XIII. It is probable that many of these estates developed in the sixth century, but how they grew is quite unknown. Some may have been imperial grants. Olybrius and Menas were high ranking officials, but Apion apparently was a native Egyptian and his family did not attain consular dignity until comparatively late. The pagarchs of Egypt seem to have been a law to themselves and by ruthless extortion they probably increased their possessions in ways outside the law. However, it is not necessary to assume that since we have a goodly number of documents from Apion's archives he was the only prominent proprietor in that district. It is evident that others paid at times higher taxes than the "noble house." The size of none of the estates can be determined, but it is probable that the Eastern Empire and Egypt in particular never developed the great baronial estates to the same degree as the West.

[93] P.O. 2056. Cf. P. Amh. 153; BGU. 323.

[94] P.O 2055. For the contracts of surety that the tenant would remain on his leasehold see p. 30.

[95] Lot, End of the Ancient World, 109ff. See *supra*, p. 29.

[96] The account of the distribution of wine (PSI. 953) probably belongs to the central estate. If P.O. 1913 belongs to Apion it probably is from the same place. Here the master and his court were entertained on a visit, and 1132 artabas of wheat were allotted for their food.

[97] For an analysis of some of the more important tax-returns see p. 269.

[98] As proof of the tenacity of small land holders in Egyptian villages, we cite the case of Spania which had over a hundred possessors (κτήτορες). See P.O. 2058.

7. ECCLESIASTICAL PROPERTY

The papyri from the fourth century, coming largely from the country districts, imply that Christianity had penetrated these areas to a very slight degree.[1] At Alexandria Christianity was soon a powerful force but the history of the Alexandrian church seems to be largely one of fanatic schisms.

The chief evidence for church possessions in Egypt during the fourth century comes from the account of the endowments granted by Constantine to Pope Silvester (A. D. 314-335) for the basilicas of Rome.[2] These are listed as follows:

ENDOWMENTS OF THE BASILICA OF ST. PETER'S:

Sub civitatem Antiochiam [3]

Possessio Sybilles: 322 solidi, 150 decads of paper, 200 lbs. of spice, 200 lbs. of nard, 35 lbs. of balsam.

Sub civitatem Alexandriam

Possessio Timialica: 620 solidi, 300 decads of paper, 300 lbs. of nard, 60 lbs. of balsam, 150 lbs. of spice, 50 lbs. of Isauric storax.

Per Aegyptum, sub civitatem Armenia [4]

Possessio Agapi quod donavit Augusto Constantino Ambrosius.

Possessio Passinopolimae: 800 solidi, 400 decads of paper, 50 medimni of pepper, 100 lbs. of saffron, 150 lbs. of storax, 200 lbs. of cassia, 300 lbs. of nard oil, 100 lbs. of balsam, 100 sacks of linen, 150 lbs. of cariophylla, 100 lbs. of Cyprian oil, 10,000 (?) clean racanae of paper.

Possessio Hybronii: 450 solidi, 200 decads of paper, 50 lbs. of cassia spice, 200 lbs. of nard oil, 50 lbs. of balsam.

[1] The earliest reference to a village church seems to be P. Oslo 113, A.D. 346, but P. Grenf. ii. 73 (Wilcken, Chr. 127) may go back to the beginning of the fourth century and the persecution of Diocletian, where a Christian seems to have been banished to the Great Oasis and was received by the guild of embalmers who were already organized as a church.

[2] Liber pontificalis, ed Duchesne, i. 177-9. These endowments may have come from confiscations made by Diocletian.

[3] *Antioch* is not in Egypt, but paper could not have been a product of any Syrian estate. Probably some Egyptian city is meant since the produce is similar to that of other Egyptian estates.

[4] *Armenia* is clearly a corruption of the original reading. *Arsinoe* seems the most likely emendation.

ENDOWMENT OF THE BASILICA OF ST. PAUL:

Sub civitate Aegyptia.

Possessio Kyrios: 710 solidi, 70 lbs. nard oil, 70 lbs. of spice, 30 lbs. of balsam, 30 lbs. of storax, 150 lbs. of stacte.

Possessio Basilea: 550 solidi, 50 lbs. of spice, 60 lbs. of nard, 20 lbs. of balsam, 60 lbs. of saffron.

Possessio Insulae Maccabes: 510 solidi, 500 clean racanae of paper, 300 sacks of linen.

If this account can be relied upon, these estates from Egypt must have been more than landed properties. The products of India, Arabia, and Palestine were not raised in Egypt, though Alexandria was not above producing very good imitations of these commodities. If these were the products of the various possessions, they must have been made in private factories. A further deduction of importance is also possible. The paper and spice industries were not wholly government monopolies at this time.[5]

The constitution of Theodosius in A. D. 415 indicates that the churches of Constantinople and Alexandria had endowments from estates in Egypt,[6] but there is no evidence of either in the papyri. So far as the Church is concerned the documents thus far published from the fifth century indicate nothing of economic importance. In the sixth century it is apparent that every village of Oxyrhynchus had its local church and this condition was probably universal.

It was a matter of dispute who instituted monasticism, but there seems little doubt that monastic foundations were flourishing in the fourth century. According to Athanasius, the biographer of St. Antony, Antony himself was a rich man, owner of three hundred fields which he handed over to the villagers when he decided to enter the monastic life.[7] His first settlement was on the route to Arabia. His activities lay within the first half of the fourth century and monasticism was greatly extended by his teaching and practice.

According to Palladius (who wrote about A. D. 420), there were 2,000 monks of distinction near Alexandria and 5,000 at Nitria,[8] 400 at Tabenna where Pachomius was a solitary,[9] but in the life of Pachomius he says that there were 7,000 on the mountain with 1,300 in the monastery in which Pachomius himself lived.[10] Besides this there were other colonies of 100, 200, or 300 monks but these pre-

[5] Econ. Survey ii, s. v. monopolies; Loane, Class. Phil. XXXIX (1944), 10.
[6] C. Th. xi. 24. 6.
[7] Budge, Stories of the Holy Fathers, 10.
[8] *Ibid.* 131, 142.
[9] *Ibid.* 160.
[10] *Ibid.* 193.

sumably are included in the total. There were also a large number of nuns who lived in nunneries across the river. At Antinoe there were twelve nunneries, one of which had sixty nuns.[11] There were 1,200 monks near the city.[12] Hieronymus (ca. 420), speaks of a thousand monks under Abba Hôr near Shainâ,[13] and of three or thirty thousand at Tabenna.[14] Oxyrhynchus had thirteen churches and so many monks that the walls of the city were well-nigh thrust out with them. In the city and environs there were 10,000 monks and 20,000 nuns under the authority of the bishop.[15] Apollo was abbot of 500 monks near Hermopolis.[16] The monastery of Isidorus in the Thebaid had thousands of monks, while Dioscurus was abbott of a hundred, and Copres of fifty.[17] In the Arsinoite nome, Serapion was at the head of about ten thousand and there were innumerable brothers at Babylo and Memphis.[18] Sozomen gives seven thousand monks at Tabenna and a thousand in the Island.[19] Later the Tabennesans under John numbered 3,000 while Serapion had a thousand in the Fayum.[20] There were 2,000 near Alexandria and 500 at Scetis.[21] Nitria had fifty monasteries.[22] It is said that 600 flourishing monasteries at Henaton were destroyed by the Persians when they conquered Alexandria.[23] The accounts of Palladius and Hieronymus when compared with each other or with Sozomen show discrepancies which reveal the untrustworthiness of the sources.

Idleness was not encouraged in the communal life. Under the rule of Pachomius there was specialization of labor; weavers, gardeners, bakers, blacksmiths, carpenters, fullers, net makers, sandal makers, scribes.[24] Alexandra wove from dawn until the ninth hour.[25] Weaving was a favorite occupation because prayers could be made or psalms recited at the loom. It was the rule for monks to weave a mat daily while others were sent to gather reeds.[26] Mats, ropes, and baskets were woven of reeds or palm leaves.[27] At the harvest season, the monks were sent to work in the fields.[28] Thus in the communal monasteries there was a very considerable productive activity and this presupposes an administrative organization of some magnitude. There is preserved a bitter complaint of mismanagement.[29] Not a pint of oil, not a jar of wine, and only ten artabas

[11] *Ibid.* 202. [12] *Ibid.* 238. [13] *Ibid.* 439. [14] *Ibid.* 442. [15] *Ibid.* 444. [16] *Ibid.* 447. [17] *Ibid.* 478 f. [18] *Ibid.* 500. [19] Eccl. Hist. iii. 14. [20] *Ibid.* vi. 29. [21] *Ibid.* vi. 29. [22] *Ibid.* vi. 31.

[23] Pat. Or. i. 485; ibid. i. 472. 600 monasteries, like beehives in their populousness, besides 32 farms called dakatinâ.

[24] Budge, *op. cit.* 191. [25] *Ibid.* 127. [26] *Ibid.* 398, 412. [27] *Ibid.* 280, 313, 318, 400. [28] *Ibid.* 500.

[29] P. Fouad 87. For an excellent survey of Egyptian monasteries as revealed in papyri,

of wheat were left in the store room. In addition to debts of 314 solidi, accounts were out 400 solidi. The management of the economic affairs was a leader (ἡγούμενος or προεστώς). The abbots or archimandrites were chiefly concerned with spiritual affairs but they also exercised supervision over economic matters. Certain monasteries had the right to a certain share of the taxes. Thus the monastery of Metanoia received 5,759 artabas of wheat from Aphrodito in one year, and the monastery provided the ships for transport.[30] Similarly in the accounts of Apion at Oxyrhynchus the monastery of Abba Andreas received a sum of 50 solidi as a customary donation (κατὰ τὸ ἔθος) and this amount was commuted to a thousand artabas of wheat on instructions from the owner. This apparently, like the payment to Metanoia, was in lieu of taxes since there is no evidence that this particular *prostasia* paid any taxes this year; and it is also possible that the " custom " was not annual, but periodic, perhaps once every indiction or some similar cycle.[31] The gift of a hundred artabas yearly as recorded in the same document may very well be an annual affair even though the amount is paid on the order of the master.[32] The village churches on the Apion estate received an annual payment in grain and money from the estate. This was usually the first item in the expense account of the *pronoetes* and may have taken the form of a tax.[33]

In the sixth century the church property was evidently extensive and as pious foundations church and monastery could hold property as juristic persons. The accounts of Ammonius at Aphrodito indi-

see Paola Barison, Ricerche sui monasteri dell' Egitto bizantino et arabo, Aegyptus, xviii (1938), 29. For churches see Antonini, Le chiese cristiane nell' Egitto, Aegyptus, xx (1940), 129f.

[30] P. Cairo 67286. In the accounts of Ammonius 190 artabas were contributed to the monastery and in that year no taxes were paid. P. Cairo 67138, P. Lond. 995-6. 1152.

[31] P.O. 1911. See Estates. Charitable gifts were of course common. Melania distributed 10,000 darics (Budge, *op. cit.* 214) and a basket of 300 lbs. of silver was given to Pambô who distributed it among the monasteries of the Island and Libya because they were very poor (*ibid.* 136). The virtues of charity were portrayed by a rich literature, see the anecdotes related in the Ms. Coislin (Revue de l'Orient chrétien, 1907, 43; 1908, 265; 1909, 357).

[32] Similarly in P.O. 1913 the Abbot Apollo was paid 400 artabas "from the first and in the third indiction" [ἀπὸ α' ἰνδ( ) καὶ ἐπὶ γ' ἰνδ( )], for three or probably four years.

[33] P.O. 1910: 9 art. of wheat to Limenias, 6 to Heraclea, 64 to the hostel of Leonidas and 20 to the Martyrium. P.O. 1911, 4 art. of wheat and 11½ c. to each of eight village churches. P.O. 1912: various churches get 4, 3, or 2½ art. of wheat and 12, 8, or 6 c. each. P.O. 2195: 6 or 4 art. of wheat and 11½ c. to some 2 art. of wheat and 14 c. to another, while two churches received 3⁹⁄₂₀ art. These small contributions by the estate show that the village churches were small or else that Apion did not control the whole village. In P. Baden 94 the church made a collection of 123 solidi from one district. Sozomen, Eccl. Hist. V. 5, says that Constantine devoted a certain amount of taxes everywhere for the support of the clergy; and that this law was still observed.

cate that much of the estate was leased from nearby monasteries.[34] The bishop of Oxyrhynchus controlled a large number of monks and nuns whose labor was without doubt productive of considerable income. That the Church here had very considerable property is evident from a tax record of the sixth century where the payment of barley for the arcarica is 1,541 artabas or approximately a tenth of the total.[35] The church estates, like those of Apion, had their pronoetae for properties lying in different villages.[36] The biographer of John the Almoner speaks of an Alexandrian church which owned several ships and gave one of 20,000 artabas burden to a Christian captain who had lost his by shipwreck. Likewise another church engaged in extensive foreign trade.[37] Thirteen of its fleet were lost in a storm in the Adriatic. Each was of 10,000 artabas burden and one is said to have been laden with silk, silver, and other commodities valued at 34 centenarii of gold, that is 3,400 lbs. or a quarter of a million solidi. Even allowing for some pious exaggeration it is probable that the churches were not above laying up a few treasures on earth.

While some of the hermits gained glory by shutting themselves up in a cell and living in extreme filth and idleness, the communal life did not encourage laziness. The excavations of various monastic sites indicate that many activities were carried on.[38] At harvest time the monks often found employment in the fields.[39] Most communities imposed a simple fare and the cost of living was slight. Palladius gives the ration of a loaf of bread daily and a box (?) of oil every three months.[40] Wild herbs were eaten raw or seasoned with vinegar or olive oil. This eulogy of the simple life need not be taken too literally. We have a great number of papyri which indicate gifts or requisitions of wine and this was not necessarily limited to the sick and infirm.[41]

[34] See Private Estates. Leases of monastic or church property were not uncommon. See Leases. The church seems to have been partial to the emphyteutic form. This may have been one way of making an endowment secure; cf. Pliny, Ep. VII. 18. The monastery of the martyr Phoebammon had an oeconomus to take care of receipts in kind (γενικός) and receipts in money (ἰδικός), P. Cairo 67299. In the seventh century the church at Hermopolis had a pronoetes for gold and apparently also for payments in kind. P. Lond. 1782.

[35] P.O. 2020.

[36] P.O. 1894; P. Cairo 67170; P. Lond. 1782 (VII).

[37] x. 28. The Catholic Church of Alexandria owned a ship on the Nile in A.D. 390 (Wilcken, Chr. 434).

[38] See Trade and Commerce.

[39] See note 28.

[40] Dorotheus ate 6 oz. of bread and a little bundle of herbs (Budge, 121).

[41] See PSI. 953 for distributions of wine by Apion's estate.

At Alexandria, the patriarch was allowed supplies by the state for the care of the poor. This was probably apart from the allowance granted by Diocletian for the poor of Alexandria. It may be seen how powerful a weapon in the hands of fanatic leaders the distribution of grain by the church might be, and one wonders how far the imperial Athanasians of Constantinople would tolerate Arian patriarchs of Alexandria as dispensers of state charity.[42] According to Procopius, the distribution of grain to the poor of Alexandria had continued in the hands of the city from Diocletian to Justinian, but Hephaestus, the governor, took the two million medimni which he says was the annual dole at that time and put it into the state granaries.[43] In the Nile valley the hostels (ξενοδοχεῖα) supported by the church were probably for the entertainment of guests of the monasteries and not necessarily for the care of the poor.

The building and care of hospitals (νοσοκομεῖα) mark a great advance in humanitarian measures. The physicians of the age were often unlettered, but every community seems to have had a public physician and at Oxyrhynchus the mention of a chief physician seems to imply a corp of assistants. These seem to have been maintained by the community, and in the accounts of Antaeopolis a payment of 60 solidi to the physician may be for yearly salary.[44] Nothing is known of the medical care provided in the church hospitals, but the close alliance of church and state in the sixth century may have implied the attendance of the city or village physician in church hospitals.[45] Whatever the state of medical science at this period, the church hospitals at least provided sympathetic care and spiritual comfort for the patient.

Arian is said to have persecuted the monastic institutions of Egypt, many of which were depopulated and ruined.[46] The bishop of Alexandria was once responsible for stirring up factional strife amongst the desert monks.[47] Valens and Valentinian sought to force the drafting of monks for military service. This produced violent disorder and many were slain by soldiers and tribunes.[48]

[42] Socrates, Hist. Eccl. ii. 17; Sozomen iii. 9.

[43] Anec. 26, 40. The allowance of Diocletian had been increased by Theodosius, C. Th. xiv. 26.

The figure of two million medimni given by Procopius is clearly exaggerated. In the life of John the Almoner it is stated that there were 7,500 paupers in Alexandria about the end of the century. At the most their allowance would be 90,000 artabas a year, allowing the normal artaba per man per month. For the προσφορά, see p. 240.

[44] P. Cairo 67151.

[45] For physicians and medicines in the monasteries see Budge, *loc. cit.* 132.

[46] Socrates, Hist. Eccl. iv. 22-4.

[47] *Ibid.* vi. 7.

[48] Hieronymus Chronica. Orosius, contra paganos, vii. 33.

The religious differences between Constantinople and the Egyptian bishops were probably a factor in restricting imperial generosity in public works. At the shrine of Menas Arcadius is credited with a basilica and the emperor Zeno is said to have given this shrine the status of a municipality and to have endowed it with new buildings.[49] Anastasius built many buildings in Egypt but except for a fort on the Red Sea nothing is known of their nature.[50] Procopius credited Justinian with a wall to protect the granaries from riots while John Malalas states that he repaired an aqueduct.[51] The Alexandrian patriarchs were apparently responsible for most of the Alexandrian churches. While John Malalas credits the church of Theodosius to the emperor, it would appear that this same church was ascribed to Timothy who also named a second church after Arcadius. Theophilus also is given the credit for the church of Theodosius as well as those for St. Mary and St. John.[52] Abimas, patriarch under Zeno, built many churches and monasteries. John the Almoner built oratories, hostels, hospitals for men and women, poor houses, and depots for food supplies.[53]

8. EMPHYTEUSIS AND SUPERFICIES

In the Roman period catoecic land and some hieratic lands seem to be taxed at a low rate which may have been a fixed canon and not dependent on the rise of the Nile flood. In these lands which were taxed or leased at a fixed rate we probably have foreshadowed the emphyteutic lease of the Byzantine period. The old classifications of land were probably eliminated under Constantine.[1] In his reign the word emphyteuticarius first appears in the constitutions of the Theodosian and Justinian Codes.[2] In the earlier of these the ius emphyteuticarium is referred to as if already known and familiar. Apparently the word implies the grant of land at a low or fixed rental for a term of years on condition that the donee would cultivate or

[49] Kaufmann, Die heilige Stadt der Wüste, 99, 181.

[50] John Nikiou 89, 31.

[51] Procopius Buildings vi. 1; John Malalas xviii. 179.

[52] John Nikiou 83; Eutychius (ed. Migne), p. 1018, 1026, 1056: John Malalas xiv. p. 359.

[53] Leontius, Vita, 3.

[1] See Land Reform.

[2] C.J. xi. 62. 1 (A. D. 315); 63, 1 (A. D. 319). The Theodosian Code is unfortunately fragmentary in Book V, 11-19 where were gathered the constitutions dealing with imperial property and the vesting of titles in imperial property granted by public bidding, imperial favor, or occupation of sterile or abandoned land by a proprietor who undertakes to develop or cultivate.

turn it into a vineyard or olive grove. The grants were made from the res dominica or res fiscalis and presumably in later times the Church possessed this right. There is no evidence that the jus emphyteuticarium was perpetual at first. A constitution of A. D. 364 implies that these lands were obtained by public bidding but in this year such lands were no longer open to bidding (licitatio) but would hereafter be held by the present lessees without any increase in rent.[3] Some years later the jus emphyteuticarium was placed beyond even the imperial power to disturb.[4] The Emperor Zeno finally recognized the contract of emphyteusis as a distinct class, neither lease nor sale, but partaking of characteristics of both.[5]

In the papyri there are few documents which can be definitely described as emphyteutic in character. Probably where the rental is called a *pactum* (*πάκτον*)[6] we may suspect the existence of emphyteusis. The earliest example is probably PSI. 176 which seems to be connected in some way with a monastery. Possibly one of the ways by which the church amassed its wealth was by accepting gifts of land from proprietors who were unable to withstand the extortion of officials, and then leasing the property on an emphyteutic contract. This form of patronage was apparently not forbidden by the Constitution of A. D. 415 which left the Churches of Alexandria and Constantinople in possession of their holdings provided they fulfilled all the obligations which the property had been required to discharge in regard to the public villages and *metrocomiae* (pro antiquae capitationis professione).[7]

Two leases about the end of Justinian's reign are concerned with Church property at Antinoe,[8] but the most complete document comes from Apollinopolis.[9] This is a lease in perpetuity of 12½ ar.

[3] C. Th. v. 5. 15-16.

[4] C. Th. v. 14. 33 (A. D. 393).

[5] A good description is given by Sohm, Institutes (Eng. tr.) p. 348.

[6] The following receipts should be noted: PSI. 176 (Oxy. for a *χώρημα* in some relation to a monastery); SB. 5946 (a courtyard belonging to a church); P. Flor. 378 (at Hermopolis); W.O. 1224 (Thebes: apparently a sublease of a third share for 4 c.). These are dated in the fifth century. Kl. Form. 79, and 314 are dated in the fifth or sixth century and both are receipts for house property. From the sixth century Kl. Form. 47 is a receipt of 6 c. for the *pactum* of a house belonging to a hospital; Kl. Form. 272, 316, possibly 271, 878, and 1086 from Hermopolis; PRG. iii. 43 (church property at Aphrodito); P. Giess. 106 (Antinoopolis). Seventh century: P. Lond. 1072 b. and 1783 (Hermopolis). Byzantine period: PSI. 279.

The pactum in SB. 6266 (A. D. 538) is apparently the contract by a hunters' guild for hunting rights. The *πάκτον* in P.O. 138 is an informal pact with reference to a lease of a stable and BGU. 1020 is apparently a pact of some kind.

[7] C. Th. xi. 24. 6.

[8] P. Cairo 67298-9 (ca. A. D. 565).

[9] P. Lond. 483 (A. D. 616).

arable land for 18¼ c. and 5 ar. dry land (i. e. land requiring artificial irrigation throughout the year) at 18¼ c. The total of the *pactum* was 36 c. (or 36½ c. goldsmith's standard).[10] The tenant further agreed to pay two jars of wine for the right of pasturing his flock.

The *dorea* in P. Baden 95 may very well be an emphyteutic grant since the tax remains constant for a period of four years. The meaning of δίκαιον of so-and-so, frequently found in the accounts of Apion, may be similar but further evidence is necessary to determine this point.

The interpretation of P.O. 1915 is not certain. The editors suggest that " the property had lately passed from the possession of the Apion family and been incorporated in the imperial estates or, more probably, it was administered by the family on behalf of the imperial house, to which a report was from time to time rendered." The schedule of rent or tax (φόρος) was evidently fixed and of long standing (ἐξ ἀρχαιωθέντος καὶ ἀμνημονεύτου χρόνου). Quite possibly this property represents an emphyteutic grant of imperial land to the house of Apion.

The πάκτον for houses found in some receipts is probably the canon for superficies.[11]

9. SALES AND LEASES OF LAND

In spite of the fact that the evidence points to the disappearance of the former complex classifications of public lands in the fourth century and the corresponding increase of private property which is indicated in the land register of Hermopolis, there are few records of the sale of land after the age of Diocletian. The lack of these contracts can hardly be due to accident especially since the number of leases of land in the fourth and sixth centuries is comparatively high. It may be that sales and leases designed to establish patrocinium were not preserved, since laws were enacted against the practice of establishing patronage under the cover of pretended sales and leases. The cession of land (παραχώρησις) disappears in the early part of Diocletian's reign. In his reorganization after the revolt of Achilleus, the right of " possessio " seems to have been greatly extended, but whether the right of sale went with these " possessiones " is unknown for there is no record of either sale or lease of such lands. The last mention of crown land (SB. 6612) records its sale as private property (τὰ ὑπάρχοντα).

[10] The half carat is presumably a tax for collection. For the fee of a half carat for ῥοπή, see Miscellaneous Taxation, *s. v.*

[11] See note 6.

Sales of land with values expressed in "silver" currency are of little economic significance, unless that currency can be expressed in terms of gold or some other stable commodity. Even when the value is known in terms of gold, there are many unknown factors, such as the problem of water supply, average yield, rate of taxation, convenience to market or to transportation facilities, which play an important part in determining the value of the property, and make a comparison of values impossible. Sales of arable land are usually conditioned on the acceptance of responsibility on the part of the purchaser for the payment of all public charges on the property for the future.

An interesting contract of sale is preserved in P. Cairo 67169, from about the middle of the sixth century. One aroura is sold for 8 solidi less 6 carats. The purchaser agrees to pay the land tax which is one and a half carats and half an artaba of wheat. Since the average adaeratio of wheat in this period is about ten artabas per solidus, we may assume that the total tax, including supplements of naulage and various percentages, can hardly exceed one and a half artabas. The purchaser's investment at the normal rate of interest (12%) should yield about 22 carats yearly. If the land required considerable artificial irrigation, it is impossible to estimate the cost of this work, but without this expense an average yield of 10-12 artabas per aroura would seem to provide an adequate return.

The sale recorded in PSI. 66 cannot be precisely dated and its provenance is unknown. One and a quarter arouras were sold for four solidi or a little over a third of the price per aroura in the preceding document. However the tax appears to be 3,000 talents in money, 3 artabas of wheat and 16 artabas of barley with a supertax (?) of 650 talents, a half artaba of wheat and a quarter artaba of barley. Without further evidence it is impossible to evaluate the talents in terms of gold but at the lowest valuation so far known (48,000 T. = 1 sol.) 3,650 talents would be slightly less than two carats. The tax in kind, if the document is read aright, is immeasurably higher.[1] Assuming wheat and barley as approximately the same in price, the land would have to produce at least twenty-one artabas yearly to pay ordinary taxes. To provide a return of 12% on his investment this plot of ground should yield 26-30 artabas of grain annually.

Leases of land are reasonably numerous except for the dark age of the fifth century. In the fourth century the form of the lease

[1] The reading is not clear. *ὑπερτελεῖς*, if correct, implies some overcharge. For the value of the talent see Egyptian Currency, 157.

follows the usual Roman type of the earlier period. Later the prevailing type is the offer of the lessee who "voluntarily and of his own free will" undertakes the lease and he alone binds himself for the fulfillment of the contract.[2] Usually the lease is witnessed, probably as a result of legislation designed to prevent the growth of patronage.[3] In the Roman period the rentals on land in cereals were paid in kind, while vineyards, orchards and gardens were rented for money. This rule seems to hold good for the fourth century, but is not necessarily true for the later period. The accounts of the estates of Apion at Oxyrhynchus indicate that tenants paid in money as well as kind.[4] Here, however, it is not possible to distinguish between rent and taxes. A contract taken by vine-workers on one of the estates is probably not to be regarded as a lease since it is merely an agreement to deliver a certain quantum of wine at the vintage.[5] All other leases of vineyards were rented in terms of money. At Aphrodito land in wheat or barley is rented for money as well as in kind.[6] When a tenant has the right to choose his crop, the rental is in one case stated in gold, in another, in kind.[7]

Leases are usually for a short term, and this is particularly true for marginal land in the Fayum, where some leases for a year carry the provision that the tenant will not abandon the lease in spite of the favorable terms. In P. Thead. 6 (A. D. 322) the lessee receives an advance of seed in loan, receives half the produce without any other charges being deducted (*ἄνευ φόρου καὶ ἐκφορίου*), is provided with all oxen and other stock up to the harvest time. In return the tenant agrees not to abandon the lease and to perform all necessary labor at the proper time. This was evidently corn land lying beyond the region of easy irrigation from the canal, but required the use of sakiyeh and a very considerable amount of labor. In general land described as *ἄνυδρος* in the later period is land which is not provided with well and pump for artificial irrigation. Whether this land was supplied from other irrigation wells or from canals is uncertain. If this land was unflooded it enjoyed a rebate which was apparently more generous than that allowed other unflooded lands.[8]

Tenure at will of the lessor appears both in leases of houses and

[2] Waszynski, Bodenpacht, 164.
[3] C. J. xi. 54.1 (A. D. 468).
[4] For leases on large estates, see p. 89.
[5] P.O. 1896 (A. D. 577).
[6] P. Cairo 67307; PRG. iii. 36.
[7] P. Lond. 1765; 1873.
[8] See Appendix to PRG. iii. and commentary on P. Lond. 1770.

lands.[9] This formula need not imply perpetual leasehold, and legislation was enacted in A. D. 441 and 468 against this possibility, though it is probable that the laws were not always enforced.[10] No dated example of an emphyteutic lease is known before the sixth century, though receipts for the *pactum* or rent on emphyteutic leases have been dated earlier on the basis of the script.[11] However, no very exact dating is possible from this criterion. The emphyteutic lease seems to be a favorite with church property and this may have been a way of creating an endowment or of securing the powerful patronage of the church by giving over property and receiving it back in emphyteutic tenure.[12] The ecclesiastical authorities seem to like long terms, and two leases of ten years are preserved.[13] The tenant seldom protected himself against ejection [14] and once a protest was lodged against the termination of a leasehold.[15] On the other hand the tenant not infrequently agrees not to abandon the lease even when it only runs a year, and sometimes a penalty is set for so doing.[16]

Rentals from the Fayum in the fourth century are seldom more than 2½ artabas per aroura, and from this amount the owner pays the tax. Evidently these leases from villages on the edge of the desert are for marginal lands on which the owner was glad to escape without loss. At Hermopolis conditions were evidently more favorable and the average rent in the fourth century was about 4 artabas per aroura. Leasing on a share basis was not uncommon, and owner and tenant usually shared alike but in one such contract the tenant paid to the proprietor from his share of the profits an extra dividend which amounts to a sum more than the usual rental.[17]

The position of the tenant seems to deteriorate in the sixth century. This is true where the share system is applied. In these cases the tenant receives a third, a fourth, or a fifth of the pro-

[9] Fayum: SB. 4481 (486), PRG. iii. 32 (504), P. Lond. 113, 3 (ca. 595), SB. 5139 (6th cent.), PRG. iii. 51 (631), *ibid.* 55 (6-7th cent.), SB. 4483 (7th cent.), BGU. 308 (Byz.); Hermopolis: PSI. 34 (397), *ibid.* 296 (520), P. Lond. 1003 (562); Panopolis: P. Cairo 67170 (564); Aphrodito: P. Flor. 283 (536).

[10] See note 3.

[11] See Emphyteusis.

[12] On Pliny's idea of making an endowment perpetual, see Ep. vii. 18. For church property, see p. 66.

[13] P. Giess. 56; PRG. v. 42.

[14] P. Lond. 1698.

[15] PRG. iii. 39.

[16] Penalty: P. Hamb. 23 (569), PRG. iii. 44 (6th cent.). Agreement not to abandon: P. Thead. 6 (322), BGU. 586 (324), *ibid.* 519 (4th cent.), P.O. 1968 (6th cent.), PRG. v. 42 (602), SPP. xx. 218 (7th cent.).

[17] P. Leipz. 18.

duce. Possibly the *δίκαιον τῆς τεταρτομοιρίας* belongs in this category, although the only lease of this land that is preserved seems to imply that a fixed amount of grain was paid rather than a share of the produce.[18]

The leases on the large estates are discussed elsewhere.[19] One of these, preserved in P.O. 1126, differs in no way from ordinary contracts, but this probably does not represent the ordinary tenancy of peasant farmers on the estates.

SALES OF LAND

DATE	REFERENCE	TRANSACTION
	APHRODITO	
565	P. Lond. 1686	3 ar. unflooded land sold to monastery on condition that latter pay certain taxes on 14 ar. belonging to vendor.
VI	P. Cairo 67097	Vineyard. 12 sol. each less 2 c. goldsmith's standard.
	Fragmentary: P. Cairo 67098-9.	
	ARSINOITE NOME	
348	BGU. 456	2 lots of palm trees (37 cubits) 124 T.
	BGU. 917	1 ar. arable land. Thousands (no. lost) of talents. Title goes back to the census of Sabinus. A. D. 298.
VII	BGU. 319	Vineyard. 12 sol.
Byz.	SB. 4661	1 ar. arable land. 4 sol.
Byz.	SB. 5320	*ἔδαφος* (15 *ἄμματα*). 18 sol. (each of 23 c.) and 6 c.
	Fragmentary: BGU. 94 (289), cession of land; BGU. 1049 (342), 3½ ar. of private land with palms and other trees; BGU. 402 (582-602), 18 ar. arable land; SB. 4669 (614), half share of property; SB. 4662 (632), share of property (houses or lands?).	
	HERACLEOPOLIS	
411	SPP. xx. 117	2 ar. (less a sixteenth). 1,000 myr. den.

[18] P. Flor. 325 (488).
[19] See Private Estates.

DATE	REFERENCE	TRANSACTION
	HERMOPOLIS	
306	P. Leipz. 6	1⅙ ar. catoecic land free of crown land. 3 T.
324	SPP. xx. 80	7 ar. private land. 20 T.
330	SPP. xx. 86 (CPR. 19)	Dispute concerning agreement of sale of 8 19/32 ar. of vineyard, 3⅛ ar. of reeds, ⅝ ar. of orchard and 42⅝ ar. of usiac land. Purchaser had agreed to pay the taxes and 2 sol. earnest money.
438	SPP. xx. 121	8 ar. arable land, ⅝ ar. of mainland, 40 sol. Purchaser pays future taxes.
VI	P. Cairo 67169	1 ar. arable land. 8 sol. less 6 c. Purchaser agrees to pay taxes.

Fragmentary: SB. 7343 (250-300), cession; P. Flor. 310 (425); P. Flor. 323 (525), release of guarantor of all loss in connection with the sale of 1 ar. of vineyard, and 1½ ar. arable land; P. Giss. 122 (6th cent.); P. Lond. 1015, agreement to surrender 16 ar. Penalty 1 lb. of gold (72 sol.); P. Lond. 1907 (7th cent.), fruit orchard 4 s.

	OXYRHYNCHUS	
290	P.O. 1702	Open lot (ψιλὸς τόπος). 12,800 dr.
291	P.O. 1208	Cession of fifth share of 4 ar. private land; with proportionate share of irrigation (and other obligations) 9,000 dr.
365	SB. 6612	ἀντίπρασις (document executed by purchaser). 49 ar. of private land, and 12 ar. of crown-land formerly owned by Serythis.

Fragmentary: P.O. 1704 (298), arable land with buildings and water wheel; P.O. 1700 (late 3rd cent.), arable land, pigeon-cote and house property all for 2 T.

	UNKNOWN PROVENANCE	
V (?)	PSI. 66	1¼ ar. arable land. 4 sol. Purchaser accepts responsibility for future taxes.

LEASES OF LAND

DATE	REFERENCE	TRANSACTION
	ANTAEOPOLITE NOME (CHIEFLY FROM APHRODITO)	
506	P. Cairo 67100	Date palms. 1 year. 12 artabas of dates.
511	P. Cairo 67101	Pasture. 1 year. Leased from corporation of Church of Three Saints.
514	P. Flor. 279	Private land in reeds on half shares for 4 years. Lessee irrigates.
517	P. Flor. 281	ἄνυδρος. 1 year. 2 art. of beans and 2 art. cnecus per ar. (one witness).
520	P. Flor. 282	ἄνυδρος. Lease on half shares. Lessee provides seed, labor, irrigation, and a colonus. Owner pays the taxes.
523	P. Lond. 1687	18¼ ar. of public lands of Aphrodito. 2 witnesses.
524	PSI. 931	Half shares for 1 year. Three tenants in partnership (shepherds and field guard) do all the work and share equally in half the produce.
526	P. Cairo 67300	Arable land with date palms and fruit trees. 3 years. Lessee does all the work with his cattle and coloni, pays the taxes in gold, and naulage in grain. Rental 28 art. of wheat, 50 cheeses, 4 measures of charlock and 8 c. for pasturage. (No witnesses).
526	P. Cairo 67103	Village land (δημόσιος λόγος). Body of text lost.
527	P. Lond. 1689	7 ar. ἄνυδρος. To be sown in any crop lessee desires and lease to run as long as tenant holds lease of property of Megalus. 10 art. each of wheat and barley.
530	P. Cairo 67104	Vineyard for 10 years. 126 jars of wine each of 7 sestarii yearly. Lessee also cultivates adjacent dry vineyard and date palms on same terms as previous lessee. (No witnesses).
531	P. Cairo 67301	ἄνυδρος land for 6 years. Lessee pays arrears of ἐκφόρια (10 art. of aracus and 2 c.). Rental 4 art. of aracus and 1 sol. less 1 c. yearly. (No witnesses).

DATE	REFERENCE	TRANSACTION
531	P. Lond. 1695	Lease for 5 years. Lessee pays the taxes in lieu of rent, and in addition 20 art. of wheat, 70 cheeses, 12 lbs. of wool for pasturage, and 6 (?) measures of charlock.
532	P. Cairo 67105	Village property (δημόσιος λόγος) 1 year. 1 sol. less 2 c.
517/533	P. Lond. 1694	Lease of arable land with trees and palms for 1 year on half shares. Landlord provides seed. Tenants furnish grass seed. Both to be repaid at harvest. Both share cost of sheep fold. Tenants furnish necessary labor, and in addition 50 cheeses and 6 measures of charlock. Landlord also receives a half aroura of hay. (This land is probably owned by the church and sublet.)
536	P. Lond. 1841	Lease for 1 year on half shares. Owner furnishes seed.
537	PRG. iii. 36	ἄνυδρος private land 5 years. 2 art. wheat per ar. No witnesses.
524/539	P. Cairo 67307	Receipt for rent of church property. Land in wheat or barley, 2 sol. less 4 c. yearly.
539	P. Cairo 67106	Village land (δημόσιος λόγος). 1 year. 2 art. of wheat and 2⅓ sol. less 3 c. (τὸ στρεφόμενον ἐν τῷ ἀπόρῳ γεώργιον).
540	P. Cairo 67107	ἀντιμίσθωσις. Two years. Lessee does all the labor. Rent 1 sol. less 2 (?) c. yearly. Furnishes a quantity of cheese.
547	P. Cairo 67128	1 ar. private land sown in flax. 1 sol. less 2 c. (paid in advance). 3 witnesses.
548	P. Cairo 67116	1 ar. in flax for 1 year. 1 sol. less 2 c. (paid in advance).
549	P. Cairo 67129	3 ar. Term unspecified. Rent 1½ art. of wheat, 2⅓ sol. (paid in advance). 1 witness.
550	PSI. 283	Lessee may sow any crop he chooses. Rent 5 art. each of wheat and barley. If the land is unflooded, rental is reduced to 2 art. each of wheat and barley.
p. 550	P. Hamb. 68	Vineyard etc. 6 years. Lessee furnishes labor, coloni, animals. On hill and dry vineyard, seed and produce on half

DATE	REFERENCE	TRANSACTION
		shares. On arable land, 4 artabas of wheat per ar. and 1 art. of barley. Date palms. 8 c. per year and owner receives produce of one palm annually. 2 wooden ?, 13 artabas of wheat, 2 jars of wine, 12 lbs. of meat, 100 cheeses, 4 measures of charlock. (1 or more witness).
552	P. Flor. 286	ἄνυδρος private land. 1 year, 6 artabas of wheat. No witnesses.
555/6	P. Lond. 1692	Two successive leases of farm for pasturage, for a period of one year. 18 c. per year. (1 witness in No. 1, 3 in No. 2).
558	P. Lond. 1007 b, c	Lease of half share of arable land and vineyard belonging to daughter of lessee. 5 years. (end lost).
527/565	P. Cairo 67243	12 1/32 ar. with an ἐκβολή of 1/8 ar. Leased for life. 18 artabas of wheat and 9 1/2 artabas of barley yearly.
565	P. Cairo 67109	Canal bed. Term at will of lessor. 1 artaba of wheat. One witness.
a. *585*	P. Cairo 67114	Lease (?) of κτῆμα.
p. *585*	P. Cairo 67325 IV R	Pasture land 3 years. 11 lbs. of wool a year. One witness.
Early VI	P. Lond. 1693	ἄνυδρος private land. 2 artabas each of wheat and barley per ar. No rent if unflooded. (end lost).
VI	P. Cairo 67097 V	Receipt for pasture. Term unspecified, 5 artabas of wheat.
VI	PSI. 934	4 1/4 ar. Lessee furnishes work and guard duty, receives a third of produce, landlord takes two-thirds. No witnesses.
VI	P. Lond. 1696	Land includes palm and fruit trees. 7 artabas of wheat (6 if land is unflooded). No witnesses.
VI	PRG. 44	Beet garden. Owner furnishes seed. Lessee furnishes animals for irrigation. Rent lost. Penalty for failure to keep contract 2 sol. (2 or more witnesses).

Fragmentary: PRG. iii. 33 (523), 3 years. Lessee provides all labor; P. Flor. 342 (524), 1 year; P. Cairo 67102 (526), 3 years; P. Lond. 1690 (527), church land leased for 1 year; P. Flor.

283 (536), private land, term at will of lessor; P. Cairo 67108 (547) sublease; P. Cairo 67251 (549), acknowledgment of debt of 1 s. less 2 c. for rent, seed, and irrigation; P. Cairo 67066 (6th cent.) is a letter of clergy regarding ἀντιμίσθωσις of property; P. Cairo 67112 (6th cent.), pasture land for a year with rental paid in money; P. Cairo 67113 (6th cent.), lessee may sow any crop; term 3 years. PSI. 284, receipt given by hostel for 14 artabas of barley as rent of "outside" (ἐξωτικῶν ἀρουρῶν); PSI. 935-7, receipts for rentals issued by church authorities; P. Lond. 1697, lease for 1 year, 1 sol. less 2 (?) c., and a quantity of saffron or kermesberry (κόκκος); P. Lond. 1698 (6th cent.), rental 20 artabas of wheat, 12 artabas of barley, 46 cheeses, and 4 measures of charlock. Lessee cannot be ejected; P. Lond. 1842 (6th cent.), 9 ar.; P. Cairo 67235 (529 ?), private land with date palms. 2 years; P. Cairo 67236-43, miscellaneous fragments of leases.

DATE	REFERENCE	TRANSACTION
	ANTINOOPOLIS	
ca. 312		For land of Antinoe at Oxyrhynchus see PSI. 449. The land register of Hermopolis (P. Flor. 71) shows considerable holdings in that nome by residents of Antinoe (see p. 19).
569	P. Hamb. 23	Vineyard. 4 ar. 5 years. Half shares. Lessee irrigates twice a month in winter and thrice in summer. Penalty for abandoning lease 12 sol. Owner pays taxes. (end lost).
	ARSINOITE NOME	
296	SB. 7674	4 ar. of private land. 3 years. 9 artabas of wheat per year. Owner pays all the taxes.
302 (or 324)	BGU. 586	13 ar. of private land. 1 year. Half shares. Lessor furnishes seed, animals (for irrigation), and pays all taxes. Lessee contributes labor and pays 1½ artabas of wheat per ar. out of his half share. Tenant will not abandon lease.
307	BGU. 408	1½ ar. of private land. 1½ artaba of wheat.

DATE	REFERENCE	TRANSACTION
313	BGU. 349	2 ar. of private land. 2 artabas of wheat per ar.
313	SB. 7675	5 ar. of village land. 1 year. Three tenants in partnership pay all taxes in lieu of rent.
314	BGU. 411	Receipt. 5 ar. of private land. 12½ artabas of wheat.
322	P. Thead. 6	20 ar. of private land. 1 year on half shares. Owner provides seed and oxen for irrigation. He also pays all taxes. Tenant agrees not to abandon lease. This land was evidently beyond the flood belt.
325	P. Thead. 7	30 ar. of private land, leased by partners. Lessees apparently pay 45 artabas of wheat as rent per year.
331	P. Strass. 43	16 ar. of private land. 5 years. Owner pays all taxes. Lessee performs dyke work and pays rent of 30 artabas of wheat yearly.
338	P. Thead. 5	10 ar. of private land. 7 years. Tenant provides all labor, public liturgies and dyke-work. Owner provides seed on loan and a team of oxen for irrigation.
374-386		P. Gen. 66, 67, 69, 70 form a special group of leases from Theadelphia issued by the comarchs of village, who pay all taxes, but require the rent to be paid in advance. The land is called *ἀπὸ ἀπόρων ὀνομάτων*. (See p. 97).
392	P. Groning. 9	Lease (*μισθαποχή*) with rent paid in advance of 2½ ar. Owner paid all taxes.
IV	BGU. 519	22 ar. of private land. 5 years. Lessor is responsible for taxes, *ἐπιβολή*, and work on dykes. Lessee agrees not to abandon lease. Rental not specified.
486	SB. 4481	Vineyard and date palms. Term at will of lessor. Three-fourths of produce to owner, one-fourth to lessee, who also pays from his share rental in dates and in money. Owner furnishes oxen and chisels (*ξοίδα* ?).
504	PRG. iii. 32	200 (plus) ar. Term at will of owner.

DATE	REFERENCE	TRANSACTION
543	SPP. xx. 142	5 ar. of private land. 16 c. yearly. Term unspecified.
584	PRG. iii. 39	Protest at termination of lease on estate.
586	BGU. 303	Renewal of lease for 4 years. 6 sol. less 46½ c. yearly.
595	P. Lond. 113. 4	30 ar. Term at will of owner, who receives three-fourths of crop in pulse and five-sixths in hay. Lessees take the remainder. The owner furnishes seed (on loan), oxen for irrigation, and cuts the hay. Lessees bind the hay and do the rest of the work. Lessees furnish 150 cheeses, 3 goats, and 2 kids (yearly ?).
VI	P. Lond. 113. 3	Same terms as above. (1 witness).
VI	SB. 5139	5 ar. Term at will of lessor. 2 sol. yearly ?
631	PRG. iii. 51	¼ ar. Vineyard. Term at will of lessor. Owner takes two-thirds of produce, tenant one-third. Lessee provides surety.
VI/VII	SB. 4485	Garden. Term unspecified 1 sol. and share of fruits in season.
VII	SB. 4483	Garden. Term at will of lessor 2 sol. and share of fruits in season.
Byz.	BGU. 308	40 ar. Term at will of lessor. Two-thirds of pulse and five-sixths of hay to owner. Remainder to lessee. Lessor provides seed (on loan) and animals for irrigation. Lessee provides 8 goats for milk on Sundays.

Fragmentary: SB. 4486 (6th cent.), vineyard; PRG. III, 55, fruit orchard. Term at will of lessor. Lessee receives a loan of 2 sol. for cattle used in irrigation (*ἀθάνατοι*) and an iron axle; Kl. Form. 800, *μονόκοιτον*, probably a garden plot, for 15 c.; BGU. 307, rental for 4-year term 18 c. less 225 myriads yearly; BGU. 311, church property; SB. 4893, public place, at 9¾ c.; SB. 4774, lease of vineyard at lessor's pleasure; SB. 4869, 6 ar. of arable land; SB. 4878, 2½ ar. of arable land; SB. 4789, house or land for 3 sol.

The documents from Caranis published by Boak in Ét. Pap., Vol. 2 and 3 belong to the period A. D. 296-313. Two of the most important are cited above as SB. 7674-5.

DATE	REFERENCE	TRANSACTION
	HERACLEOPOLIS	
301	CPR. 40	50 ar. for seeding in hay for pasturage. 250 dr. per ar. Owner pays taxes.
335	CPR. 247 *	5 ar. of private land for hay. 1 year. 100 T. paid in advance (μισθαποχή). Owner pays taxes.
IV	BGU. 938	2 artabas of aracus per ar.
IV/V	CPR. 42	22⅔ ar. Lease on half shares. Owner pays taxes and provides the seed.
	VILLAGE OF OBTHIS (POSSIBLY HERACLEOPOLITE NOME)	
305	CPR. 41	9 ar. of village land. 1 year. 5¼ artabas of wheat per ar. Village pays the taxes. Rent paid in Epiph and Mesore.

Fragmentary: SB. 4727 (Byz.), rent 6 sol. each of 22½ c.; BGU. 933 (Byz.). Receipt for φόρος τοῦ διαμισθωτικοῦ 4½ artabas on 2 arouras (probably imperial land).

	HERMOPOLIS	
293	P. Baden 26	11 ar. in hay. Part 16 dr., part 21 dr. per ar.
III/IV	P. Leipz. 18	Agreement between owner and two others to share in cultivation of two lots of land for two years. Profits, expenses, and taxes to be shared equally. The owner also receives from his partners 6 artabas of wheat per ar. on 12¼ ar. in wheat and 1,200 dr. per ar. on 3 ar. in hay.
320	P. Leipz. 19	5 ar. private land. 1 year. 4 artabas of wheat per ar. Owner pays all taxes.
322	P. Vindob. Boswinkel 8	Palm and olive. 6 T. yearly, and 2 art. olives, 1 art. of dry and pressed dates.
325	SB. 8019	10 ar. village property. Some portion appears to be leased at 5 artabas per ar., but the total rent appears to be 20 artabas. The comarchs pay the taxes.

* For date see Comfort, *A. J. A.*, XXXVII (1933), 287.

DATE	REFERENCE	TRANSACTION
328	SPP. ii. p. 33	44 ar. private land. 2 years. Half in wheat at 5 art. per ar., half in hay at 1 artaba of beans per ar. Owner pays taxes.
341	P. Flor. 17	5 ar. private land in hay. 1 year. Half shares. Owner pays taxes.
346	P. Lond. 979	4 ar. private land in flax. 1 year. One and a half centenarion of flax. Owner pays all taxes and assessments.
347	P. Cairo Pr. 39	15 ar. private land. 1 year. Lessee may sow any crop he wishes. 30 artabas of wheat. Owner pays all taxes and ἐπιβολαί.
348	SPP. xx. 98	10 ar. private land on half shares. Owner pays all taxes.
372	BGU. 1092	20 ar. private land. 1 year. Lessee may sow any crop he chooses. Land in wheat at 6 art. per ar. Land in pulse at 4 art. barley and 2 measures (γύργαθα) of barley chaff.
373	P. Flor. 320	Rental. 7 artabas of wheat per aroura for 1 year.
370-90	P. Leipz. 23	Private land. Half shares in aracus. Lessee provides seed and pays all expenses. Owner pays taxes.
381	P. Leipz. 20	1 ar. private land. 2 years. 4 artabas of wheat per ar. Owner pays all taxes.
382	P. Leipz. 21	Sixth share of 4½ ar. private land held in partnership. 4 artabas of barley and 1 bundle of wheat chaff.
388	P. Leipz. 22	12 ar. (?). Private farm called Pkol ( ). 1 year. Half in wheat, half in rest crop. Half share of produce. Lessee furnishes seed and pays all expenses. From his half the lessee to pay 8 artabas of wheat on condition that of six ar. in rest crop, the tenant may put 4 ar. in grass for himself and 2 ar. for the owner. The latter pays all taxes.
397	PSI. 34	4 ar. private land. Term at will of lessor. 20 artabas of wheat and aracus. Owner pays all public taxes.
IV	P. Leipz. 24	Lease on half shares by tenants in partnership. Tenants provide seed and pay

DATE	REFERENCE	TRANSACTION
		all expenses from seed time till harvest. Owner pays all taxes.
IV	PER. NN. 13	Vegetable garden. 1 year. 3 T.
IV	P. Lond. 1832	2½ ar. of church property. X years. 12½ (?) sol. less X carats.
435	P. Flor. 315	Vineyard. Lessor (?) receives three-fourths of produce. Lessee provides certain gifts and cultivates land four times a year.
477	SB. 7167	40 ar. private land with cistern and wooden sakiyeh. 6 years. 200 artabas of wheat, a suckling pig, 2 artabas of raphanus, cheese, 20,000 brick and other gifts.
497	SB. 7758	Debtor ratifies his former loans and acknowledges an additional loan of 10 artabas of wheat and 2½ of barley. In lieu of repayment, creditor has the lease of 1 ar. from borrower's farm in rest crop to sow and take the produce of all kinds in wheat and chaff for 1 year. Debtor also agrees to plow and irrigate a third of the land in wheat belonging to creditor, and pledges all his property as security. This document has two witnesses.
510	SB. 7519	7 ar. private land ἄνυδρος held in mortgage by the lessor. Lease to run for the term of the mortgage. Lessee may sow any crop he chooses. 30 artabas of wheat and 6 of barley yearly. (3 witnesses).
512	SB. 7369	Vineyard. 2 years on half shares. Lessees also agree to furnish 80 cnidia of wine, a suckling pig worth 6,000 T. and a basket of fruit worth 4,000 T. in the first year; in the second year they provide a pig worth 5,000 T. and a basket of fruit worth 3,000 T. Palm trees rent for 8 c. yearly. (2 witnesses).
520	PSI. 296	5 ar. private land and reed plot. Term at will of lessor. 2 c. yearly and an unknown number of artabas of grain. Owner also receives five-sixths of some produce.

DATE	REFERENCE	TRANSACTION
537	Gr. Pap. i. 56	4 ar. 5 years. 20 artabas of wheat; half is unflooded.
540	PSI. 188	Ἐπίυδρος land. Leased by three οἰκέται on mutual security (2 witnesses). 35 artabas and 5 sol. less X c. Reference to ὑποθήκη.
554	P. Lond. 1765	Lease of private land for 2 years. Lessees choose their crop. Rent 2 artabas of wheat. Fragmentary.
556	P. Lond. 1873	Lease of private land. 2 years. Lessee chooses his crop. 19 c. a year. (Descriptions).
556	P. Lond. 1006	1¼ ar. private land, ἄνυδρος, 5 years. 1⅓ sol. less 8 c. or 1 sol. in the Alexandrian standard.
ca. 561	Gr. Pap. i. 58	3¾ ar. private land. 1 year. Lessee does the irrigation, furnishing his own oxen. Receives one-fifth of the produce and 1 sol. less 6 c. (2 witnesses).
561	Gr. Pap. i. 57	Lease of farm with sakiyeh and all equipment. 3 years. Lessee may sow crops of his own choosing. 120 artabas of wheat. Fragmentary.
589	PRG. iii. 40	15 ar. 6 years. 30 artabas of wheat and 30 of barley yearly. Lessor does half of irrigation. Lessee chooses crop.
V/VI	Gr. Pap. i. 59	Loan of 6 sol. each less 3 c. made to lessees of land in advance of lease. Loan to run for tenure of lease.
VI	P. Lond. 1036	2 ar. 1½ sol. less 9 c. and jar of wine.
VI	P. Lond. 1770	1⅝ ar. (plus). ἄνυδρος, 5 years. Lessee chooses crops. Rent lost. Amount reduced to a third if land is unflooded. Tenant provides something valued at 1,000 T., 20 cheeses, and 2 artabas of wheat chaff yearly. (3 witnesses).
VI	P. Lond. 1771	Land half in wheat and half in barley as in previous lease. Rent lost. Tenant also provides something worth 1½ c., 1 cheese, 20 bundles of straw, 2 measures of charlock, and a certain quantity of milk yearly. (3 witnesses).

DATE	REFERENCE	TRANSACTION
VI	P. Giess. 56	Vineyard belonging to monastery. 10 years on half shares. Tenant guarantees not to abandon lease and will cultivate plot of land west of vineyard for produce apart from taxes.
VI	P. Lond. 1037	Loan of 4 sol. less 24 car. Advanced for cost of irrigation of vineyard. To be repaid at end of lease.
VI	P. Lond. 1772	½ ar. Arrears of rent for two years are 3 artabas of wheat, 3 of barley and a third of an artaba of vegetable seed. Promises to pay on pledge of all his possessions. (2 witnesses).
VI	P. Lond. 1796	Probably a lease of land for 1 year. Rent 12 solidi of which 2 sol. were paid in advance. Owner to plow the land with his own oxen, and to work the sakiyeh. (2 witnesses).
602	PRG. v. 42	27½ ar. belonging to church. 10 years. Tenant agrees not to abandon lease. 5 sol. less 6 c. for garden. Hay and grain (quantities lost) for arable land. (1 witness).
605	PRG. iii. 49	3 ar. 3 years on half shares. Lessee chooses crop, and provides all the labor. 2 (?) witnesses.
633	P. Lond. 1012	3 ar. 1 year. 15 artabas of wheat. (Witnesses?).
VI/VII	P. Oxford 16	1 ar. and 50 *ἄμματα*. 12½ art. half in wheat, half in barley, 10 sheaves of straw, 1 bundle of chaff, and 1 pipkin of milk.
VII	P. Baden 95	Rent of court 9½ c.; of cellas, 5 c. each, and three for 1 sol. less 5 c. *Φόρος* of fruit orchard, 4 sol. less 20 c.; of date palms 7 c.
VII	SPP. xx. 218	Vineyard of 3 ar. 3 years. Owner receives half the produce and in addition 100 measures of new, 3 great amphorae of old wine, 100 cheeses, 200 loaves of bread, pig worth 3 c., oil, etc. Lessee agrees not to abandon lease, digs land 5 times a year and does the necessary cleaning. (End lost).

DATE	REFERENCE	TRANSACTION
VII	BGU. 900	Share of orchard. Rent. X artabas of dates, half artaba of olives and persea each. (No witnesses).

Fragmentary: SPP. xx. 79 (322) olives and date palms; P. Vindob. Boswinkel 9 (331). Palms and garden; P. Flor. 64 (4th cent.) land register with rents or taxes (?) see p. 91; PER. NN. 125 (452) *κτῆμα* for which yearly *ἐνοίκιον* is 6000 T. (*ἐνοίκιον* is not used as rent for land); P. Lond. 1776 (VI/VII), pledge to pay arrears of rent; P. Lond. 1767 (561). Lease by vine worker with two *ἐγγυηταί*; P. Lond. 1003 (562), 3 ar. of vineyard. Tenure at will of owner. Lessee does necessary work of irrigation and digging; P. Flor. 37 (5/6), money rental, probably garden land; P. Flor. 299 (6th cent.), rental 31½ c. yearly; P. Lond. 1780, rental five-sixths of an artaba; P. Lond. 1781, rental 5 sol. each less 6 c. without gratuity; P. Lond. 1769, vineyard; P. Lond. 1051, rental 1 sol. less 6¼ c.; P. Baden 95, rentals on a private estate.

OXYRHYNCHUS

285	SB. 7443	1 ar. 2 years. 10 artabas of barley yearly. Owner pays tax.
287	P.O. 1690	5 ar. 3,000 dr. per ar.
291	P.O. 1691	3 ar. in flax. 2,500 dr. per ar.
296?	PSI. 316	Lessee clears land and owner receives a third of the produce paying all taxes. Term 1 year.
306	P.O. 102	9 ar. in flax. 1 year. 9,500 dr. per ar. Owner pays taxes. Tenant paid 4 T. in advance.
ca. 312	PSI. 449	Land belonging to city of Antinoe leased by Diogenes who was held responsible for unpaid rentals of his subtenants for the previous year.
316	P.O. 103	1 ar. in flax on half shares. Lessee provides seed and all work. Owner pays tax.
353	P.O. 1632	Palm grove. 1 year. 8,000 T.
356	PSI. 1078	*ἔδαφος*. 1 year. 25 artabas of wheat, 8 of barley, and 2½ of vegetable seed. Tenant receives a loan of 4,000 T. and agrees to do irrigating and work on dykes.
III or early IV	PSI. 187	10 ar. of land controlled by decaproti for 1 year, on which lessee may put any

DATE	REFERENCE	TRANSACTION
		crop he chooses. Rental 1 T. Another lot of 11 ar. in hay at 200 dr. per ar. Decaproti pay all taxes.
425	P. Oslo 35	2½ ar. 1 year. 8 artabas of wheat and 14 of barley.
442	P.O. 913	9 ar. 3 years on half shares. Lessee chooses crop and furnishes seed, labor, and dyke-work. Owner pays all taxes.
488	P. Flor. 325	21 ar. *περιελθόντες εἰς σε ἐκ δικαίου τεταρτομοιρίας*. Rent is lost, but seems to be a fixed amount rather than a share. The owner pays taxes.
V	P.O. 1126	4 ar. 1 year. 13 c. (private standard) per ar. yearly. Lessee chooses crop. (Leased from *προστασία* of a large estate).
551/65	PSI. 77	Farm (*μηχανή*). 2 years. 55 artabas of wheat and 4 sol. less 16 c. Owner pays taxes. No witnesses.
574	P. Berol. Zilliacus 7	12 ar. for 40 art. wheat and 2 s. for taxes (*λόγῳ ἀργυρικοῦ*). A flagon of wine and a pig for festivals, and expenses of the season of tax-paying. Receives loan of 1 s. and lessee does the *naubia*.
VI	P.O. 1968	6 ar. (garden?). Tenant performs naubia or work on canal and agrees not to abandon lease. No witnesses.
VI	PSI. 881	Vineyard and garden-land. 12 sol. and 160 jars of 5 sestarii each yearly. Tenant agrees to perform naubia.

For the accounts of estates see p. 269. Other documents: P.O. 1134 (421), steward of imperial estate acknowledges receipts of rentals.

PANOPOLIS

330	SB. 7666	Lease on shares for one year. Owner pays taxes.
546	P. Cairo 67170	Orchard of monastery planted in lachanus. Term of lease at will of lessor.
VI	PRG. iii. 48	*ἄνυδρος* land leased by monastery. No terms.

DATE	REFERENCE	TRANSACTION
	THEBES	
VII	SB. 7480	Letter referring to lease of land belonging to monastery but giving no details. W.O. 1224 is apparently an emphyteutic pact (p. 72).
	PROVENANCE UNKNOWN	
IV	P. Cairo Pr. 38	Land in beans and aracus. Five-sixths of an artaba each of beans and aracus per ar. If others offer more, these tenants promise to meet the offer.
IV	P. Cairo Pr. 41	2 ar. garden and wheat-lands. 4 talents. Amount in wheat is lost.
IV	SPP. xx. 105	15 ar. 90 artabas of wheat yearly.
VI	P. Rend. Harr. 81	Owner apparently furnishes 14 artabas of wheat annually to tenant who repays loan at harvest time.
VII	PER. 35	5 ar. 2 sol. yearly.
Byz.	SB. 5691	1 ar. for pasturage. 7½ c. Alexandrian standard.

Fragmentary: SPP. xx. 113 (401), owner pays tax; PSI. 1056 (6th cent.) 6 years, 2 sol. yearly. Owner cannot dispossess during term of lease; P. Princeton 179, vegetable garden and orchard; SPP. xx. 166, rent of garden 2 sol. (*δυπαροί*); PSI. 920, vineyard and arable land. Rental in money; Gr. Pap. ii. 97, rental 38¾ c.; BGU. 840, hay land. Some form of partnership on half shares. Owner furnishes oxen, seed, and pays the cost of clearing land. Lessee furnishes labor and binds the hay; SB. 4733, 2 ar. of green fodder; SB. 4774, vineyard. Lessee does work, digs land twice a year and keeps irrigation ditches open; P. Lond. 1878, 1 ar. for 5 years on shares.

III. THE PEOPLE

1. THE VILLAGE AND THE PAGUS

AGRICULTURE was the chief industry of Egypt and here the fertility of the soil suffered less deterioration than in other parts of the Empire. In addition to the tribute for Constantinople there was wheat for sale in the open market. Of this trade practically nothing is known but an annual payment of tribute in gold to Constantinople could be met in no other way than by the sale of surplus commodities annually.

The cultivation of the soil fell on the peasant class living in hamlets and villages scattered throughout the land. These peasants constituted the *multitudo colonorum* of whom Constantius spoke in his edict.[1] They had been in Ptolemaic and Roman times the *βασιλικοὶ* or *δημόσιοι γεωργοί* who had been by custom, if not by law, practically semi-feudal. So far as we can determine, their condition was not altered by Diocletian, but the relation of the villages to the land seems to have been modified in some degree. Thus in A. D. 306 a request for a lease directed to the *κοινόν* of the village of Obthis, represented by the comarchs, described the land as belonging to the village (*ἀπὸ τῶν διαφερόντων τῇ ὑμετέρᾳ κωμῇ*).[2] A register of Theadelphia, probably to be dated A. D. 322, described both private and crown land as village property (*κωμητικὴ κτῆσις*), and the responsibility for the taxes fell on the village officials.[3] In A. D. 325 the comarchs of a village of Hermopolis constituted a juristic personality (*σῶμα*) in issuing a lease.[4] The recognition of the village as having *possessio* of the territorium seems to be a new factor in Egyptian land tenure, though it may have developed long before Diocletian, and it is probably part of the same development which made the village officials responsible for the taxes.

[1] C. Th. xi. 24. 1.

[2] CPR. 41. Cf. SB. 8019, addressed to the comarchs of Nagogis (A. D. 325). P. Lond. 1827 (for liturgy of cultivating crown land). It should be noted that there is no mention of public farmers (*δημόσιοι γεωργοί*) in the Byzantine period.

[3] P. Princeton 134. Athanasius in his history of St. Anthony says that he turned over 300 fields to the villagers when he became a monk. Abandoned land was assigned to the village by the praepositus pagi (Kraemer and Lewis, TAPA. lviii (1937), 1 ff.). For the responsibility of village officials see P. Thead. 14, 16, 17, 20.

[4] SB. 8019 (A. D. 325).

The concept of village possession was further developed when the old classifications of land were abolished by Constantine or his immediate successors. The old imperial estates disappeared as usiac land, but probably there was merely a change of name. The former tenants continued as coloni of the " divine house " and apparently were bound to the estate as before, though a constitution of Theodosius permitted them to purchase land and thus emancipate themselves from their humbler status. In the case of the crown and hieratic land the situation was quite different, but in the absence of direct information we are again left to conjecture.

The register of land held by residents of Hermopolis probably should be dated shortly after the elimination of the crown and hieratic land.[5] In this long register the largest category was private land which needs no definition. The next largest category was called public land (*γῆ δημοσία*). There is no clue as to the meaning of this term. A much smaller one was described as city land (*γῆ πολιτική*). Now Alexandria is the city *par excellence* in Egyptian documents, and it is quite possible that this may have formed part of that city's holdings. The area is too small to constitute the territorium of Hermopolis. Another register, probably contemporary, mentions a small tenancy of the *οὐσία Ἑρμοπολιτική*. This property, formerly owned by Besas, probably came to the city by gift or confiscation, and so far as we can tell this was the only land held by Hermopolis.[6]

The registers of Hermopolis indicate that private tenure of land had greatly increased. No mention of village land is made. Some land carries no descriptive epithet but is merely said to lie in such and such a pagus. Whether this is due to carelessness on the part of the scribe or whether this describes land belonging to the pagus is uncertain. Although the pagarchy replaced the jurisdiction of the decaproti, there is no evidence that the pagus had a territorium.

Somewhat later than these registers some leases from Philadelphia show that land described as unproductive (*ἀπὸ τοῦ ἀπόρου* or *ἀπὸ τῶν ἀπόρων ὀνομάτων*) was leased by village officials.[7] The rent on these leases is not stated but it was paid in advance, even a year or more before a crop could be harvested. Waszynski suggested that the leases were issued in this way because the local magistrates needed the revenue.[8] This may be true, but the land was probably marginal fields which could raise a crop only when the floods were unusually good. There is no evidence of compulsion, and it is proba-

[5] P. Flor. 71. [6] P. Leipz. 101. [7] P. Gen. 66-7, 69-70. [8] Bodenpacht 107.

ble that some speculator was taking a gamble on a good flood in the future.

From the evidence cited above, the land reform, probably carried out by Constantine, converted the leaseholds of municipal tenants on crown and hieratic lands into private ownership. Instead of rental they paid a tax which was probably the same in amount, but if they had the right of sale their condition was probably improved. Did the coloni in the villages acquire the same right as the citizens of the municipality? Here the evidence is scanty. There is no indication that the imperial house profited by the reform. Constantine may have transferred some of the hieratic land to the endowment of churches, but the pagan temples in Egypt had long ceased to have title to the hieratic land and the confiscation of pagan temple property for Christian uses probably meant little except in Alexandria itself. We have discussed elsewhere the development of patronage in the Egyptian village.[9] From the constitutions which dealt with this matter, we learn that small and weak villages, unable to protect themselves from the exaction of tax collectors and bureaucratic officials, sought protection in the patronage of some wealthy or powerful individual. In the imperial constitution we find indication of the corporate responsibility of the villagers, and Theodosius mentions the public villages and the metrocomiae. Neither of these terms occurs in papyri. To the residents of the metrocomiae, the *convicani*, Theodosius conceded the right of possessing their land but not to any one else.[10] Apparently Diocletian recognized the corporate responsibility of the village for the land in its territorium. Where the crown land was eliminated the land became the possession of its former tenants as was the case at Hermopolis. This right was confirmed by Theodosius, but in his efforts to check the development of patronage, he went further and denied any outsider the right to acquire property in the village. This had the effect of making the village a closed corporation, and aliens were not even allowed to enter.[11] The private possession is evidenced in Spania where over a hundred possessors (*κτήτορες*) were subjected to penalty for injuries inflicted on their head-man.[12]

While most of the land of the village passed into private posession, there was a certain amount which belonged to the village as a whole. At Philadelphia this was marginal land for which no owner could

[9] See p. 23.

[10] C. Th. xi. 24. 6. In the fragmentary petition in P. Lond. 1827 the land seems to be attached to the village males capable of working it.

[11] BGU. 323; PRG. iii. 8.

[12] P.O. 2058.

be found since in years of a poor flood it was quite unproductive. Such lands were leased in years of a good flood and brought some revenue into the treasury.[13] In the sixth century the same conditions persisted. In the village of Sabbis the protocometae assigned this land as a liturgy to a widow who appealed to the duke of the Thebaid for release.[14] In the division of an estate at Panopolis or Antinoopolis part of the land lay above flood waters and apparently was often unproductive. The heirs had often sought to make a cession of this property to the community (*παραχωρῆσαι τῷ ἀπόρῳ*) to be placed in the category of unproductive land.[15] Maspero suggested that this could be done only if the owners made a cession of productive land as well, but the text of the document is unsatisfactory and this interpretation cannot be certain. At Aphrodito three leases issued by the village treasury department (*δημόσιος λόγος*) were dated during or after the flood season.[16] One of the leases definitely described the farm as *τὸ στρεφόμενον ἐν τῷ ἀπόρῳ γεώργιον*. These were probably all marginal lands and the leases were not taken until it was known whether the height of the flood would justify a crop. When John took the census of village property, Ammonius was credited with 13 ar. of ownerless (*ἀδέσποτος*) land.[17] Whether this was a forced assignment of unproductive land is unknown. There is no evidence that the leases issued by the village were compulsory. This public land evidently yielded little grain, for the village accounts show very small amounts paid for transportation.[18] Probably the marginal lands were ordinarily used for pasture.

The effect of legislation to check the development of patronage in Egypt will probably never be known. At Aphrodito the two most prominent families in the sixth century appear to be those of Count Ammonius and Dioscurus. Neither owned very extensive estates if we can judge from their tax payments, and the census of Ammonius gave him 58 ar. in arable land, vineyard, and marsh.[19] Besides he leased a fair amount from the monastic institutions in the village and sublet to others, apparently with small margin of profit. At Oxyrhynchus the family of Apion evidently had large holdings. A number of documents, usually appeals for some assistance, come from villagers who state that the village belongs to

[13] See note 7.
[14] P. Cairo 67006.
[15] P. Cairo 67313.
[16] P. Cairo 67105-6; *ibid.*, 67103 is fragmentary, but dated Thoth 19.
[17] P. Cairo 67140[2].
[18] Two solidi in P. Cairo 67287; 1 s. 16 c. in P. Cairo 67058.
[19] For the taxes on estates see p. 269.

his nobleness (διαφέρουσα τῇ ὑμετέρᾳ ὑπερφυείᾳ). This seems to be a bit of exaggeration. At least in those accounts which surely belong to the archives of Apion, his estate lay entirely in hamlets (ἐποίκια) or steadings (κτήματα, δίκαια, etc.). In no case were there more than ten or a dozen leases in these hamlets, in some cases only one or two.[20] If we are to judge from the accounts, the village still remained a closed corporation as decreed by Theodosius.

The picture of village communities in the sixth century differs little from that of earlier times. The peasant clung to his possession as tenaciously as he had clung to his lease of crown land in his native village. The villages still maintained their corporate existence though new officials had appeared to replace the old, but probably with the same powers. The village elders were replaced by the protocometae. Aphrodito had a different set-up. Formerly a metropolis, it had become a village of Antaeopolis. It seems to be governed by a sort of guild composed of συντελεσταί (who are probably a survival of its metropolitan rank) and protocometae with no other officials.[21] The village treasury (δημόσιος λόγος) was for a time controlled by the hypodectes John, who made payments when the order was countersigned by two protocometae. Later the expelleutes of Antaeopolis seems to have controlled the treasury and issued leases.[22] The lack of a strong central government led to many quarrels by villages, especially over water rights. They maintained their own guards and police force. Thus leases of land sometimes specified that the land lay within the protection of such and such village, perhaps as a guarantee that the interests of the lessee would be safeguarded.[23]

The village accounts of Aphrodito may be typical of the period.[24] The main function of the organization is the collection of taxes, the canonica, annona, and gratuities for the bureaucratic officials. Certain sums were spent for food of various kinds, presumably requisitioned for entertainment of official guests. Nothing is spent for the village community itself, if these accounts present a true picture. There is no mention of schools, public health, and only a few trifling contributions, presumably as charity, to monastic institutions. As a former city, Aphrodito might have preserved some of the amenities of Greek urban life but evidently these had disappeared, even though Dioscurus still preserved sufficient culture to compose Greek verse. The official language was still Greek. The power of tradition still

[20] See, for example, P.O. 2195.
[21] P. Cairo 67001, 67283.
[22] P. Cairo 67052-3; P. Lond. 1667.
[23] P. Lond. 1012, 1037, 1765, 1769; P. Cairo 67151.
[24] See p. 283.

maintained this as the official language long after the Arab conquest, but this apparently was the sole survival of Greek influence.

The decay of villages on the rim of the Fayum oasis must be ascribed to neglect of the canals on the higher levels. At these levels the current was probably more sluggish. The canals were the first to silt up and permit the encroachment of the desert. Elsewhere the village community continued to exist at about the same level as in the past. The population had evidently changed little from the time of Josephus to the Arab conquest, and had arrived at a state of equilibrium which did not change much until modern methods of irrigation and agriculture enabled the land to support more people. In 1882 the census indicated a population about the same as at the Arab conquest but in the last sixty years the number has about trebled.[25]

The village community was the backbone of the Egyptian agricultural economy. The Byzantine emperors did their best to preserve this organization intact and so far as the evidence goes, the conditions of life have not changed from the time of the Pharaohs till the twentieth century.

In the year 307/8 the Roman government introduced the pagus into Egypt.[26] This year marked the beginning of a five-year indiction cycle and presumably the new system had something to do with taxation. It is somewhat surprising to find the Latin word for village applied to this subdivision of the nome.[27] Thus the Hermopolite nome was divided into 18 pagi. There is probably an echo of this reorganization in the Arsinoite nome where Caranis is said to belong to the comarchy of Pelenius.[28] Pelenius was probably the praepositus pagi rather than comarch, and he apparently made the assessments for supplies on the various villages. To this official the nominations for village offices were for a time submitted for approval or confirmation. He had some police or judicial powers in addition to his responsibility in connection with assessments in money and in kind.[29] He supervised the leasing of village land and in some measure shared responsibility for taxes.[30]

[25] Eutychius (Migne, p. 1105) says 6 million Copts were liable to tribute (not exacted from women, old men, or boys under puberty) at time of conquest.

[26] Boak, Mélanges Maspero.; SB. 7751.

[27] This organization may have been undertaken by some governor or higher official familiar with the province of Gaul.

[28] Boak, Harvard Studies li, No. 3 (p. 45).

[29] Oertel, Die Liturgie, 301. See also P.O. 2112 and SB. 7756.

[30] P. Oslo 113 (earliest example of surety for tenant); TAPA. lxviii (1937), 357 (abandoned private land assigned by pr. p. to village of Caranis); PSI. 309 (annona of Alexandria).

The pagus undoubtedly played a part in the decline of the polis, especially as an administrative centre. It is possible that the system of pagi may give some clue to the metrocomiae. This word is not found in Egyptian documents but if each pagus had an administrative centre, this may have been designated in law if not in popular parlance as the metrocomia.

The system of pagi may not have persisted through the Byzantine period. Somewhere in the fifth century the praepositus pagi disappeared. In the sixth century the pagus seemed to have become synonymous with the nome and the pagarch the most powerful official next to the governor of the province.[31]

2. THE BYZANTINE POLIS

Few Greek cities were founded in Egypt and of these we have scant records.[1] Alexandria was the most important but the Byzantine historians were more concerned with religious controversies and gave little attention to other matters. A letter, attributed to Hadrian but more probably a forgery of the Byzantine age, gives a picture of the industrial life of the city which is probably accurate.[2] At the time of the Arab conquest the city was still an important trading and manufacturing centre.

In spite of its importance, the site of Alexandria has yielded few papyri or inscriptions to the explorer. Its sources of revenue are unknown. It is not certain that Alexander endowed his new foundation with any territory. The οἶκος πόλεως administered properties in various parts of Egypt but little is known of their value or extent.[3] If there was any municipal territory in the reign of Diocletian, it was evidently insufficient to provide for the poor of the city as the Emperor granted a dole which seems to have continued to the sixth century. The city had the right to requisition supplies of various kinds from Fayum villages in the early fourth century but it is unknown whether this was a privilege of the city or whether market prices were paid for the goods.[4] Requisitions of labor were also

[31] Rouillard, L'administration civile de l'Égypte byzantine, 52 ff.

[1] Jouguet, La vie municipale dans l'Égypte romaine; A. H. M. Jones, Cities of the Eastern Roman Provinces, Chapter XI. See also the supplement to this work, The Greek City, where scattered references to the Egyptian cities may be found. H. I. Bell has contributed a good chapter on Egypt and the Byzantine Empire in the Legacy of Egypt edited by S. R. K. Glanville.

[2] Scr. Hist. Aug., Saturninus 8.

[3] Econ. Survey ii. 681 ff. The "Land of the Alexandrians" is not necessarily municipal property, see Jones. Cities of the Eastern Roman Provinces, 325.

[4] Charcoal (P. Amh. 138; P. Baden 39); chaff (PSI. 805; O. Mich. 219); barley for race

made.[5] In the land register of Hermopolis a small area was designated as γῆ πολιτική. This did not belong to Hermopolis whose land was called the οὐσία Ἑρμοπολιτική and probably formed part of the possessions of Alexandria which was the city *par excellence* for the Egyptians.[6]

The history of the other Greek foundations is obscure in the Roman period. Antinoopolis was founded by Hadrian in honor of Antinoos. He gave certain endowments but whether it had a territorium is unknown.[7] In the fourth century a large number of Antinoopolitans were registered as land owners at Hermopolis. In addition two estates called the οὐσία Οὐλπιανή and Πλατωνική (Πλωτινική?) are probably survivals of the Hadrianic endowments.[8] Similarly the property leased by a certain Diogenes in the Oxyrhynchite nome and by him sublet to others may have formed part of the Hadrianic endowment of Antinoopolis.[9]

Hermopolis and Arsinoe had called upon their magistrates to contribute generously to baths, games, and water systems.[10] The demands on the magistrates at Hermopolis were so great that the prefect intervened to set a limit on the amount to be spent for various local activities.[11] Septimius Severus gave the nome capitals municipal status, but so far as can be determined this reform consisted of the grant of a municipal senate. There is no evidence that any change was made in the land or that any grant of land was given to the city. If the municipal senate were made responsible for the taxes of the nome, it might be assumed that the nome itself constituted the municipal territorium. However there is no evidence that the senators had any further responsibility than the discharge of senatorial liturgies which were essentially munera patrimonalia or liturgies involving the incumbent in financial obligations. The decaproti were instituted but their responsibility for the collection of taxes is not clear. In one case the centurion in charge of imperial estates orders the arrest of the heirs of a decaprotus, but in this case it is probable that the deceased had been a lessee of imperial property and his heirs were responsible for his obligations to the imperial procurator. At any rate it may be doubted whether this

horses (Harv. St. li. 35 ff.). A payment for olive oil for lighting the city may be for Alexandria (Kl. Texte 988).

[5] See Liturgies.

[6] P. Flor. 71; P. Leip. 101.

[7] Econ. Survey ii. 681 f.

[8] P. Flor. 71.

[9] PSI. 449.

[10] Econ. Survey ii. 682 ff.

[11] P. Amh. 70.

document can be used to prove the liability of the senate or the decaproti for the local taxes.[12]

In the third century Hermopolis spent large sums for public works and gave generous pensions to athletes in the reign of Gallienus when the rest of the empire seemed to be facing a serious economic crisis. The source of these funds is unknown. It may have been the voluntary contribution of magistrates or senators. Possibly the senate was empowered to raise money by special assessments providing no source of imperial taxation was impaired. An extraordinary tax on houses was made at about this same time and may represent one source for the unusual expenses.[13]

There is no evidence that the many reforms of Diocletian affected the municipalities directly. At the end of the third century Oxyrhynchus seems to have taken on renewed vigor as a city and several copies of minutes of the local senate give some idea of its activities, but there is no indication that there was any grant of territory. An application for a lease of land stating that it was under the jurisdiction of the decaprotus (*ἀπὸ τῶν ὑποστελλόντων τῇ δεκαπρωτείᾳ*) might imply some responsibility for that official in leasing,[14] and the presence of the decaprotus in land surveys of the Arsinoite nome indicates some connection but again definite proof of liability for taxes is lacking.[15] The decaprotus disappeared early in the fourth century and his duties seem to have devolved on the praepositus pagi.

Indirectly the early Byzantine legislation played an important role in the history of the Egyptian municipality. The exemption of the urban proletariat from the poll tax placed the Egyptian and the Greek element in the cities on the same footing.[16] The epicrisis and membership in the gymnasia lost all significance and the ephebia soon disappeared.[17] In the second place the creation of the pagus as an administrative unit within the nome early in the fourth century seems to have decentralized power once concentrated in the capital of the nome. The development of the pagus is obscure but in the sixth century the pagarch was the most important and powerful administrative official in what was once the nome. Apion held the office at Oxyrhynchus, and Aphrodito protested frequently about the exactions of the pagarchs of Antaeopolis. Christianity was generally

[12] P.O. 62 v. See Oertel, Die Liturgie, *s.v.* C. Th. xii. 1. 97 (A.D. 383) shows that the curiales of Egypt were responsible for the farming of certain taxes.

[13] CPH. 101.

[14] PSI. 187.

[15] See Land Declarations.

[16] C. Th. xiii. 10. 2; C.J. xi. 49. 1.

[17] The ephebe is last mentioned in A.D. 323 (P.O. 42).

opposed to the pagan culture and customs of the Greeks and as the new religion spread in the cities Greek culture and institutions disappeared. Finally in the land reforms of the fourth century the privileged position of the Greek land owner disappeared. When all land became private property and all privileges of taxation were abolished, the supremacy of the Greek was doomed.

The Greek city in the nomes had always been an exotic growth, and lacking any territorium had depended more or less for its existence on the privileged position of the Greeks. When this privileged position disappeared, the native Egyptian element reasserted itself, and the municipal institutions of the Greco-Roman world gradually disappeared. Early in the fourth century the logistes appears at Oxyrhynchus and Hermopolis in charge of the finances.[18] By the end of the fourth century the records of civic institutions practically cease. The repressive legislation of the fourth century applied to the curiales may or may not have had its effect in Egypt.[19] If we are correct in believing that the Egyptian city was quite unlike those of the Greco-Roman world, this legislation may have had no bearing on the decline of the Egyptian municipalities. On this question further evidence is necessary. At the end of the fifth century Anastasius instituted certain changes. The responsibility for the collection of taxes seems to have been taken from the curiales and placed on a group called the *συντελεσταί*.[20] These formed a sort of *κοινόν* at Aphrodito and are once mentioned in a tax return from Oxyrhynchus.[21] The curiales were not wholly displaced as they continued to function and Justinian required the *πολιτευόμενοι* of Alexandria to contribute to the municipal budget.[22] Anastasius also created an official called the *vindex* whose function seems to have been similar to that of the old curator rei publicae, though perhaps with greater power. Justinian mentions Potamon who established the budget for Alexandria but otherwise the official is unknown in Egypt. The government of the old nome capitals seems to have devolved on the pagarch, and the importance of many cities was limited to their serving as the seat of the bishop and the residence of the local bureaucracy.

[18] Oertel, Die Liturgie, *s. v.* Whether this logistes was similar to the official found in other parts of the empire may be open to question. For the logistes at Hermopolis see SB. 8020 (A. D. 325).

[19] C. Th. xii. 1, 1-192, but see especially xii. 1. 97.

[20] John Malalas, p. 394 (Dindorf).

[21] P. Cairo 67001, 67105, 67117-9; P.O. 2020.

[22] SPP. xx. 217 (Arsinoe, A. D. 580) P. Cairo 67004 (Ombi); Justinian Edict XIII. In the Novellae the *βουλευτής* seems to be dropped although there are still a few constitutions dealing with the curiales in the Codex. Evidently uniformity was never the rule.

In the fifth and sixth centuries we have very little information about municipal revenues. Oxyrhynchus still maintained public baths.[23] The cost of heating is given as 27 solidi. The pagarchy contributed 2 solidi 21 carats, paid in equal instalments by two families whose connection with the pagarchy is unknown. The balance was provided by contributions from wealthy families, the Church, and a small payment made by a village. Revenue may have been derived from fees of bathers and rent of lockers but evidently this source was insufficient for maintenance. This is the sole evidence for municipal expense at Oxyrhynchus. A corps of physicians seems to be maintained and the chief physician at Antaeopolis received a yearly allowance of 60 solidi but whether this was paid from the imperial or municipal budget is unknown.[24] In the tax register of Antaeopolis the sum of 25 solidi was allowed for the physician who apparently was temporarily assigned to the troops and this was paid from the imperial revenues.[25] The defensor, tribune of the peace, and other bureaucrats received salaries which were paid partly from assessments at Antaeopolis and partly from the village of Aphrodito.[26]

Somewhat more is known of Alexandria in this period. Thus the corporati or artisan guilds were charged with the duty of keeping the aqueducts in order. Theodosius relieved them of this liturgy and gave instructions that 400 solidi should be taken for this purpose from the receipts of the two-nummi tax, and this was to be later repaid from a tax on shipping (ex titulo navium). Neither of these taxes is otherwise known but there is no evidence that either was normally under civic jurisdiction.[27]

As the second city of the empire the budget of Alexandria as described by Justinian in Edict XIII is of interest. The vindex appointed by Anastasius drew up a budget which was revived by Justinian in this edict. The expenses were as follows:

Public baths	492 solidi
Anticantharus	418 "
Transportation of grain	558½ solidi

The source of this money was not given. Justinian says that the

[23] P.O. 2040.
[24] P.O. 126; P. Cairo 67151.
[25] P. Cairo 67057.
[26] P. Cairo 67057; P. Flor. 297.
[27] C. Th. xiv. 27.2 (A.D. 436). Repeated by Justinian (C.J. xi. 29.1) so the rule continued until that time, but no mention of this expense was made in the budget of Edict xiii.

sums appropriated for the baths and for transportation had been stolen or mishandled and the source had ceased to produce the necessary amount. Some of this had been derived from export dues on pottery (κέραμοι), but through the connivance of the bureaucracy immunity had been purchased by exporters and this source was no longer productive. Justinian restored the old budget and appended to his edict a schedule (brevium), now lost, to provide the necessary funds. In addition the curiales (οἱ πολιτευόμενοι) were required to contribute 100 solidi, presumably for the horse races in the Hippodrome, and the Augustalis was authorized to contribute 320 solidi for the thirty-six horses provided by him for the races, presumably from imperial revenues. Thus the total budget for Alexandria according to this edict was 1889 solidi (or about 26 pounds of gold) yearly.

The meaning of ἀντικάνθαρος is not yet fully determined. The suggestion that it was a public bath opposite a building nicknamed the cantharus or 'beetle' by the Alexandrians does not commend itself, since it is improbable that separate entries were made for the maintenance of the public baths, and it is quite unlikely that more than half the municipal budget was devoted to this purpose. The charge for transportation of grain was evidently an appropriation to defray the cost of transporting the dole for the poor of Alexandria. Procopius accused Hephaestus of depriving Alexandria of this dole but it is clear that Justinian had no such intention when this edict was issued.

The pagan academies of Alexandria were not wholly eliminated by Christianity, for Horapollon of Aphrodito speaks of them as still flourishing in the sixth century.[28] Presumably these were supported entirely by private fees.

It is quite evident that Alexandria derived no income from municipal lands in the age of Justinian. Whatever money it controlled depended entirely on the bounty of the emperor except for the 420 solidi contributed by the Augustalis and the senators. Whether Justinian gives the complete picture of municipal expenses is perhaps to be questioned, but if there were other revenues or expenses the evidence is still to seek.

The market fairs for live stock at Thinis were still important in the sixth century.[29] Whether these fairs brought in revenue for the local government is unknown. Of course Alexandria was still the market par excellence for Egypt. She still retained a monopoly for

[28] P. Cairo 67295.

[29] P. Cairo 67002.

papyrus and her factories still retained a good share of the luxury trade from Arabia and India. The caravan route from Myos Hormos to Antinoopolis was important enough for the alabarch to maintain an office at the latter city in the sixth century. 'Amr, the conqueror of Egypt, had evidently spied out the land as a caravan trader from Arabia. When he reported his capture he is said to have written his master as follows: " I have taken a city in which there are 4,000 palaces, 4,000 baths, 40,000 Jews who pay tribute, and 12,000 green grocers." To the desert nomad, the richness of Alexandria must have been impressive, but we can allow for considerable exaggeration in the pride of victory. Butler may not be far wrong when he suggests that the truth might be obtained if these numbers were divided by ten. Even so, Alexandria was entitled to the honor of being the second city of the Empire.

Few public works in the cities can be credited to the imperial government or to local authorities. A stoa was built at Taphis at a cost of two million talents.[30] Justinian seems to have spent little in Egypt.[31] The renaming of cities in honor of various emperors may have been for benefits conferred or expected, but of these benefits evidence is lacking. The numerous churches, hospitals and monasteries seem to be built largely at private expense.[32] The important work on canals and embankments was presumably under the control of imperial officials but again documentary evidence is lacking.

In the western Mediterranean the manorial villa developed at the expense of the municipalities. In Egypt the Greco-Roman city had never been firmly rooted and never possessed the economic resources of its western counterpart. The Byzantine legislation destroyed the privileged economic position of the Greek element in the cities and the Church fought the Greek philosophic schools with much bitterness and probably carried the fight against all Greek culture. The development of the pagarchy seems to have weakened the city as a political unit. In the sixth century Oxyrhynchus was crowded with churches and monasteries and the pagarch and the bishop probably shared the whole administrative function of the ancient city. The Egyptian city had begun as a temple city under the priest kings of Pharaohs. At the close of Byzantine rule the circle was complete and the surviving cities are known primarily as seats of Christian bishoprics. The village had been fostered by the Byzantine emperors as the main source of tribute in grain and they had taken strong

[30] SB. 5099. This was probably built from private funds.
[31] Procopius (Buildings vi. 1. 6) mentions a wall at Phiale to protect the grain supply.
[32] See Church Property.

measures to prevent the growth of great estates. The village grew at the expense of the city, and with the revival of the village there was a corresponding renascence of the native Egyptian culture somewhat overlaid with Arian Christianity but hardly modified by centuries of Greek or Roman conquest.

3. INDUSTRY AND COMMERCE

The history of industry and commerce in Egypt from the abdication of Diocletian (A. D. 305) to the Arab conquest in A. D. 640, due to the character of the sources, must be an imperfect one. We have, it is true, a great mass of documents from various sites in Upper Egypt, documents that provide details as to the agricultural and commercial activities of those places. Then there are excavation reports for a small number of sites, reports that add much to the information derived from the papyri. Lastly there are the scattered bits of information from the literature of the period. But in none of these sources can be found a trustworthy picture of the commercial and industrial life of Alexandria.[1] To write of Egypt under such conditions is like writing of modern England with no reference to London, or of France with no reference to Paris. One example may be mentioned. Glassware was perhaps the most important manufactured product of Alexandria and one widely distributed through the Nile Valley. It is almost unnoticed in the papyri and finds have been adequately reported from only one site, Caranis.

Agricultural products and those connected with live stock, fish and birds have already been described. The present chapter is concerned with the products of mines and quarries, with manufactured products of all kinds, and with the distribution through trade channels of these products both in the Nile Valley and in the outside world.

A. Quarries

The red porphyry of Egypt, " star-spangled " according to Paulus Silentiarius, seems to have been most highly esteemed in the Byzantine period. Much of this stone is found in Constantinople, a large part of which seems to have been taken from older buildings at Rome. Thus there is a letter written to Justinian by Marcia, his sister, telling him that she is sending for use in the building now known as Saint Sophia eight columns which were taken from a

[1] Leider, Der Handel von Alexandria (1933), is almost entirely devoted to the pre-Diocletian period. Sarasin, Der Handel zwischen Indien und Rom (1930), is short and has nothing of interest.

temple of the Sun erected in Rome by Valerian. At Constantinople Constantine much earlier had erected a porphyry column composed of nine great drums each eleven feet in diameter and eleven feet high. Porphyry was also largly used for urns, labra and sarcophagi; notable among the latter being those of Helena, Constantia, Julian, Maximian and Valentinian II. That of Queen Helena is thirteen feet high and eight feet long. Perhaps this too is an earlier piece, reused.[2]

Red porphyry was obtained from quarries at Gebel Duchar and here only.

Alabaster quarries were located at Beni Souef and at Assiout near those that the Egyptians had worked from the earliest period in their history. At the beginning of the fourth century these were worked by condemned criminals.[3] The " overseer of workers in the great alabaster quarries " is mentioned in P. Thead. 34 of A. D. 324. P. Thead. 36 of A. D. 327 seems to imply alabaster quarries near Alexandria and in the Fayum but in both instances the interpretation is doubtful.

Limestone was quarried at Kalabsche and Oxyrhynchus and undoubtedly at any place along the river where stone was needed. The fine white limestone of the Mokattam hills must have been in use but seems to be unmentioned.[4] Sandstone is mentioned at Armant. Among the other stone objects found in the excavations on that site are diorite and granite grinders, alabaster palettes, and a model bird carved out of serpentine.

The common brick was sun-dried but fired brick is also found where it could be afforded. Thus at the Menas Sanctuary there are a few which had been brought from Alexandria or the Nile valley, for proper clay for fired brick did not occur locally.[5] Fired brick is also mentioned in connection with a church in the Fayum, where 21000 were obtained at a cost of $3\frac{2}{3}$ solidi.[6] Other references occur at Hermopolis, Antaeopolis, Armant, Tell Edfou and Aphrodito, the first two definitely in connection with churches. SPP. XX. 230 from an unknown site speaks of fired brick for use in a gymnasium bath.

Workers in the building trades are often mentioned in the papyri. Sometimes they are found organized in guilds.

(a) GENERAL. Builders or architects: Arsinoe, Theadelphia, Oxyrhynchus, Hermopolis, Panopolis, This, Aphrodito, Hermonthis, Fayum. (b) STONE. Stone mason: Hermonthis, Oxyrhynchus;

[2] Riegl, Spätröm. Kunstindustrie, 170 ff., says that it is a revised work of the second century.

[3] Wilcken, Chrest. 391 of A. D. 301.

[4] It occurs in Diocletian's palace at Spalato.

[5] Kaufmann, Die heilige Stadt, 185.

[6] SPP., x. 259 (VI).

stone carrier: Fayum; sculptor: Aphrodito, Oxyrhynchus; column mason: Arsinoe, Fayum; stone mill maker: Arsinoe, Oxyrhynchus, Aphrodito. (c) WOOD. carpenter: Oxyrhynchus, Tabenna, Arsinoe, Theadelphia, Hermopolis, Antinoopolis, Aphrodito, Panopolis, Hermonthis, Thebaid; cabinet maker: Antinoe; wood sawyers: Fayum; wood carver: Arsinoe, Antinoopolis; bed maker: Oxyrhynchus. (d) BRICK. brick makers: Oxyrhynchus, Hermopolis, Aphrodito, Fayum, Arsinoe; brick layers: Arsinoe. (e) MISCELLANEOUS. plasterer: Oxyrhynchus; painter: Oxyrhynchus, Aphrodito, Hermopolis, Fayum; moulder: Oxyrhynchus.

BUILDING MATERIALS

MATERIAL	PLACE	DATE	REFERENCE
alabaster	Beni Souef	301	Wilcken, Chrest. 391
	?	324	P. Thead. 34
	?	327	" 36
	at Saqqara		Quibell, III. 9
	at Armant		Mond & Myers, Temples of Armant, 58 f.
red porphyry	Gebel Duchar		Procop., Aedif. 1. 11
			Eusebius, Mart. Pal. VIII. 1
			Porter, What Rome was built with, 51
			Liber Pontif. 182,[7] 233, 234,[8] 243.[9]
			Paulus Silentiarius, 377
limestone	Kalabsche		Revue des ét. grec. VII. 295
	Oxyrhynchus	VI	P.O. 134
	Saqqara	V	Quibell, III. 9
	Armant		Mond & Myers, op. cit., 58 ff.
fired brick	Egypt		Kaufmann, Heilige Stadt, 185
	—	IV	SPP. XX. 230
	Fayum	VI	SPP. X. 259
	Hermopolis	V?	P. Flor. 378
	Antaeopolis	VI	P. Cairo 67021
	Aphrodito	VI	" 67139

[7] Sepulchre of Helena.
[8] Constantine's Baptistery.
[9] Oratorio of the Holy Cross.

MATERIAL	PLACE	DATE	REFERENCE
	Tell Edfou	—	Fouilles Franco-Polonaises I (1937) 61
	Armant		Mond & Myers, op. cit. 40 f.
quarries	Maximianopolis	c. 300	SB. 2267
	general	c. 357	Athanasius, Hist. Arianorum 72
gypsum	Fayum	VI	SPP. X. 259
granite	Saqqara	V	Quibell III, 6
sandstone	Armant		Mond & Myers, op. cit. 58 f.
diorite	"		" " " "
serpentine	"		" " " 50 f.

B. Precious and Semi-precious Stones, etc.

Along the road from Coptos to the Red Sea were found gold, topaz and emeralds,[10] the last coming from the modern Gebel Zabara, sometimes called Mons Berenicides. These mines are mentioned by Heliodorus which shows they were still productive in the fourth century. However he locates them in "Ethiopia." Olympiodorus says that in his time the emerald mines could be visited only with imperial permission. Much later the Arab traveller Idrisi speaks of the emerald mines which he locates near Syene: "not far from the town of Assouan on the east bank of the Nile is another mountain, in the roots of which is a mine of emeralds. Nor is there found in the whole world a mine other than this one, which is indeed, crowded with miners. And from hence the emeralds are distributed over the whole earth."

Carnelian was one of the traditional semi-precious stones among the Egyptians and examples of amulets carved in this material have been found on Coptic sites as at Armant.

Alexandria maintained apparently its agelong business, cutting and carving the precious stones imported there. Palladius mentions a priest who was a skilled gem cutter. Two well-known papyri, P. Holmiensis and P. Leid. X. are full of interest for those concerned with the Egyptian jewelry trade. Here one finds how to whiten real pearls, how to purify crystal, how to make imitations of pearls, rubies, beryls, amethysts, lapis lazuli, jasper, etc.; how to give copper the appearance of gold; how to gild silver.[11] In reading the instruc-

[10] JRAS. 1892. 811.

[11] P. Holm. 157, 164, 166, 168, 180, 183, 184, 185; P. Leid. x. 38, 49.

tions one is reminded of Pliny's frequent references to frauds in precious stones. The buyer needed to know well the merchant from whom he bought.

Alexandria likewise continued to produce fine silver plate for export while the common mention of silversmiths and goldsmiths in the papyri implies local production for local demands. It seems likely however that the production of silver plate for export was gradually transferred to Constantinople.

PRECIOUS STONES ETC.

STONE	PLACE	DATE	REFERENCE
topaz	Egypt	general	JRAS. 1892. 827
	"	"	P. Holm. 179
green turquoise?	"	—	P. Lond. 193
emeralds	Gebel Zabara	"	Olympiodorus, FGH. IV. 66
	" " (?)	Italy	Claud. VIII. 586 [12]
	" " (?)	India	Cosmas Indico. XI. 368
	" " (?)	Emona	Ber. RGK. XV. 204 [13]
	in Alexandria		Book of Paradise I. 141
gem cutters	Alexandria		Book of Paradise I. 141
	Fayum	VI	Kl. Format, 607, 813
jewellers	Alexandria	a guild	Leontius, Vita S. Ioann. 22
silverware	Alexandria (?)	Wettingen IV	Drexel, Alex. Silbergefässe, 184
	" (?)	Firka V/VI	JEA. XXI. 194
	"	exported	Leontius, Vita S. Ioan. Eleem. 28
hyacinth	Heracleopolis	484	PSI. 183

C. Glass

That Alexandria played an important part in the production of glassware during the Byzantine as in the earlier period is a fact, but how important this part was is difficult to say. Alexandria was favored by easy access to supplies of excellent sand, so good that until the ninth century the Venetians carried it to Italy for use in their own glass works. It was not until the third or fourth centuries that the Gallic glassmakers got entirely away from Alexandrian influences in technique and shapes.

[12] On clothing of Honorius.

[13] Fourth cent.

A constitution of A. D. 337 granted exception from liturgies to certain groups of artisans. Among these were the glass blowers (vitriarii) and glass cutters (diatretarii).[14] This action by Constantius seems to have been the cause for a revival in the production of glass but there were marked differences between the industry of the fourth century as compared with that of the first to early third centuries. In the first place Alexandria was now manufacturing glass largely for home consumption rather than for the foreign market; [15] in the second place there had been a deterioration of technique and decoration. The third century witnessed the beginning of mass production of glass for table use; the earlier colorless glass giving way to colored glass of poorer quality. Ointments and perfumes were shipped abroad in glass containers but here the glass was secondary.

The chief source of information about Alexandrian glass of the fourth and fifth centuries is to be had in the report of the University of Michigan excavations at Caranis, though certain types not found on that site occur at Armant. Steady deterioration of quality is to be noted until the fifth century when the occupation of Caranis ceased. The numerous examples of glassware from the Arab period indicate a marked revival in quality of workmanship but when this began is not clear.

The chief products of the Alexandrian shops during the fourth and fifth centuries were oval dishes, bowls on base rings, deep bowls, bowls on stem, beakers with rounded rim, conical lamps, drinking cups on stems, jars, large flasks for table use, bottle flasks without handles, one-handled jugs and bottles, two-handled flasks and bottles, toilet bottles. Most of these are extremely common in Egypt but very few seem to have been exported, probably because of the fact that their average quality was too poor. A piece of millefiori glass definitely dated in the fourth century was found at Armant. This is the earliest of the late Roman examples to be found in Egypt.

There seems to be no definite evidence that glass was made in Egypt outside of Alexandria. The word "glassmaker" seems to occur on a fourth century document from Hermopolis but unfortunately there is doubt as to whether the part of the word that is preserved really represents a trade or a proper name.[16] Less likely is the evidence for Arsinoe.[17] Harden considers that an oven found

[14] Cod. Theod., xiii. 4. 2 (A. D 337). See also Cod. Inst., x. 66. 1 and S. H. A. Alex. 24. Numerous other trades also were granted exemptions from munera.

[15] Harden, Roman Glass, 34, says that Egyptian fourth century products seem not to have been exported.

[16] PRG. v. 60.

[17] Zeit. Ges. Erdk. xxii. 73.

at Armant was used for the production of glass, but earlier in the same work it is suggested that the oven was a metal smelting furnace.[18]

Glass mosaic cubes are found at various places as in the Menas Sanctuary of the time of Arcadius and at Saqqara.[19] These were easier to produce than tableware and may have come from places other than Alexandria, though information is completely lacking. Green beads found at Wieuward in Holland in graves of the Frankish period are thought to be of Egyptian origin.[20] Until local manufacture was begun in China in A. D. 424, glass ware from Egypt and Syria was among the exports to the far east.[21] Glass is found in:

Classis		Notizie, 1904. 188 [22]
Cologne		Harden, Roman Glass, 47 f.
China		Hirth, China and the Roman Orient, 232
Saqqara	V	Quibell, III. 6
Thebes	IV	Winlock & Crum, Epiph. 94
Antinoe	570	P. Cairo 67151
Aphrodito	VI	" 67097
Caranis	IV/V	Harden, Roman Glass, passim
Armant	IV/V	Mond & Myers, Temples at Armant, 118-121

D. Pottery

Egypt maintained its large scale production of pottery, as it does today, and, with one minor exception, all of its production was for home use. To the fourth century and later belong a series of ampulla with religious reliefs: the so-called Menas flasks, in which pilgrims took holy water from the Menas sanctuary near Alexandria to their homes. Examples have been found throughout the Mediterranean world.[23] These had a religious purpose and cannot be considered objects of ordinary trade. They were containers for the holy water but their manufacture must have provided considerable employment, and with the water, considerable profit for the shrines that sold them. From the third century onward numerous terra-cotta figurines show-

[18] Mond & Myers, Temples of Armant, 118; but see *ibid.* 38.
[19] Kaufmann, Die heilige Stadt, 103; Quibell, Saqqara, iii. 6.
[20] Kisa, Glas, 131.
[21] Hirth, China and the Roman Orient, 232.
[22] Perfume holders. Fifth century.
[23] Kaufmann, Menas Ampullen, 60; Pagenstecher, Ausgrab. in Alex., 90, 91.

ing syncretic and symbolic tendencies were made.[24] These are common in Egypt but were not exported.

Of uncertain date is a series of painted Coptic pottery described in Ancient Egypt, June 1935.

The variety of shapes and forms produced is illustrated by the list in Reil, Beitrage, 42 ff. where over twenty names that occur in Byzantine papyri are listed. Two of these, *βασκαύλης* and *κούκκουμα*, seem to be transliterations of Latin words, vasculum and cucuma respectively. Shapes and forms of pottery found in the excavations are illustrated and described in such works as Winlock & Crum, Epiphanius, 78 ff., Kaufmann, Die heilige Stadt, 197 ff., and very fully in such works as Mond & Myers, The Temples of Armant; Mond & Myers, The Bucheum; Wooley & Randall-MacIver, Karanog.

The clays used for these vessels show a wide range: orange, scarlet, marigold, yellow, amber, lemon and citron while the covering washes or slips show those colors and in addition crimson, red and white. The range of painted decoration is wide and striking. The most noteworthy group comprises representations of animals, both realistic and flamboyant. Except for the fish motives, most of the animal decoration is later than the fourth century. It is said that the use of flamboyant animals in decoration indicates foreign influence, undoubtedly the same influence that is seen in fifth and sixth century textiles.[25] Whether any of these pieces of pottery were actually imported is impossible to state. More probable however is the statement that it was the forerunner of the glazed ware made at Fustat under the Arabs.

A classification of pottery lamps differing somewhat from those given by Petrie, Roman Ehnasya, or by Walters, Greek and Roman Lamps in the British Museum, is to be found in JEA. XXV (1939), 48 ff. This covers the period from the third to seventh century. Certain types not found at Ehnasya are illustrated in Mond & Myers, The Temples at Armant, plate 28.

From the fourth to at least the end of the sixth century the excavations in Upper Egypt show the persistence of a type of pottery described as terra sigillata or pseudo terra sigillata [26] or more simply as Samian.[27] This ware maintained its identity with its Gallic prototypes in material, technique and relationship of forms. It is fine

[24] Erman, Die ägyptische Religion, 224.

[25] Mond & Myers, Temples of Armant, 96.

[26] Mond & Myers, Temples of Armant, 80. Similar ware was made in Alexandria during the second and third centuries for which see Botti in Schreiber, Ausgrab. in Alex., 339.

[27] Winlock, Epiphanius, 84 f.

grained, hard and well baked, reddish in color, and with a more or less lustrous red iron-oxide burnished wash. The shapes are limited to cups, bowls and dishes.[28] Although this particular fabric is unlike the ordinary Coptic pottery it seems to be a local production and not an importation as is sometimes said.[29]

Certain cities seem to have specialized in particular products. Saite jars are mentioned at Oxyrhynchus; water jars made at Keneh have been found at the monastery of Epiphanius.[30] These are undoubtedly the jars called balalis now made at Balas. Much pottery was made at the Menas sanctuary: bowls, jugs, amphorae, lamps, ampullae, statuettes, in fact everything needed for public or private life.[31] Wine jars were made in enormous quantities and ordinarily seem to have been pitched on the inside.[32]

A lease made in A. D. 565 of a pottery at Aphrodito specifies a rental of 2400 jars a year.[33] This implies a plant of very considerable size. Unfortunately the text does not make clear whether or not the pottery was privately or municipally owned and hence in the nature of a monopoly. Justinian, Edict 13, ch. 15, mentions the fact that an export tax on pottery had formerly been granted to Alexandria as a source of municipal revenue, but apparently this tax through grants of immunity and the peculations of administrators had ceased to be productive.

POTTERY

PLACE	DATE	REFERENCE
Menas City	IV	Kaufmann, Die heilige Stadt, 197 f.
Hermopolis	517	P. Lond. 994
Aphrodito	565	P. Cairo 67110
Arsinoe	VII	Rev. Égyp. III. 168
Hermonthis	—	Lefebvre, Rec. chrét. 395
"	—	BGU. 668

[28] See Winlock, Epiphanius, fig. 37; Mond & Myers, Temples of Armant, types 8 to 15; Junker, Das Kloster am Isisberg, 61 f.; Fouilles Franco-Polonaises, Tell Edfou I, 123 (here called " d'Arezzo)."

[29] As Wooley & MacIver, Karanog, 51.

[30] Winlock and Crum, Epiphanius, 90.

[31] Kaufmann, Die heilige Stadt, 197 ff.

[32] As in Winlock & Crum, Epiphanius, 78 f.; Fouilles Franco-Polonaises, Tell Edfou, I, 124.

[33] P. Cairo 67110.

PLACE	DATE	REFERENCE
"	338	P. Leipz. 97
"	IV/V	Mond and Myers, Temples of Armant, 82
Oxyrhynchus	324	PSI. 300
		SAITE JARS
Oxyrhynchus	IV	P. O. 1658
		KENEH WATER JARS
Thebes		Winlock & Crum, Epiph. 90
		POTTERY TOYS
Bucheum	IV/V	Mond, Bucheum, pl. 82.
		POTTERS
Hermonthis		BGU. 668
Arsinoe	635	P. Paris 9
	VII	P. Lond. 113, 8 b.
Aphrodito	565	P. Cairo 67110
	VII	P. Cairo 67288
Hermopolis	IV	PRG. V, 60; P. Flor. 71
	428	P. Flor. 314
	505	P. Flor. 73
	517	P. Lond. 994
Oxyrhynchus	IV/V	P. O. 1754
	555	P. O. 1913
Toe	"	" "
Great Parorius	"	" "
Thebes	VI/VII	SB. 2137; Reil 38
Fayum	VI/VII	P. Lond. 387
	635	SB. 4488
		POTTERY VAT MAKER
Arsinoe	615	BGU. 368
	635	Reil 38
Fayum	VI	Kl. Format. 104

E. Metals

No metals except possibly copper and iron were actually found in Egypt. However the metal working trades were widespread and in certain fields had acquired a high reputation.

All the silver and undoubtedly all the gold used in the coinage or the arts were imported.[34] In the British Museum are two fourth century gold bars found at Abukir.[35] One is marked Benignus coxit in Latin, the other is stamped in Latin and Greek. Goldsmiths are commonly mentioned in the papyri but their presence is not to be inferred where only the " goldsmiths' standard " is mentioned in connection with payments of money.

Silversmiths are found at Alexandria, Oxyrhynchus, Antinoopolis, Coptos, Hermopolis, while workers in orichalchum occur at Panopolis and Sabbis. A list of the various objects made by such workers is given by Reil 57 ff.

Workers in the common metals were found throughout the country. At Meroe and Kerma as well as at other places between these two sites are extensive remains of an iron-smelting industry that seems to have ended about A. D. 350. Further to the north around Wadi Halfa are similar remains. Here the industry seems to have been in operation from about A. D. 250 to 650.[36]

In A. D. 396 Synesius wrote to Alexandria from Cyrene asking that a bronze hydroscope be cast to his order. A bronze lamp in the form of a bird was discovered at Firka, and a toy bull of bronze at the Bucheum.[37] These may be mentioned as examples of highly skilled work. But the common products of these workmen were the everyday objects of common life. Examples may be seen in such works as Mond and Myers, The Temples of Armant.[38] A copper or bronze foundry owned by a church is mentioned in a document probably of A. D. 621.

Arrows were sent from Alexandria to Cyrene for use by the forces defending that region against native raids.[39] Synesius complains of their poor quality.

METALS

copper mines	Dionysias		Class. Philol., I. 174

WORKERS IN METALS

goldsmiths	Oxyrhynchus	IV	P. O. 1146
	"	V	P. O. 1870
	"	VI/VII	P. O. 132

[34] Fitzler, Steinbrüche, 7.

[35] SB. 2061; Arch. Anz. 1905, 166. The word ERMOY seems more likely a personal name than an abbreviation for Hermopolis.

[36] Sudan Notes and Records, xxvi (1945), 1 ff.

[37] Mond, The Bucheum, plate 84.

[38] Particularly pp. 40, 43, 46.

[39] Synesius, Epist. 133.

	Arsinoe		P. Genève 15
	"	V/VI	PSI. 1058
	"	531	SPP. XX. 139
	"	VII	Kl. Format. 812
	Hermopolis	IV	P. Flor. 71
	"	IV/V	P. Leipz. 101
	"	517	P. Lond. 994
	Heracleopolis	IV	PRG. v. 61
	Fayum	VI	Kl. Format. 98
	"	VII	Kl. Format. 449, 599; P. Lond. 1315 f.
	Antinoe	VI	P. Cairo 67022
	"	454	SPP. I, p. 7, No. ii
	Aphrodito	535	P. Cairo 67297
	"	VII	P. Cairo 67288
	Panopolis	599	P. Paris 21
silversmiths	Oxyrhynchus	IV	P. O. 1146
	"	306	P. O. 1653
	Alexandria		Leontius, Vita S. Ioan. 22
	Hermopolis	IV	P. Flor. 71
	Coptos	IV	P. Lond. 983
makers of silver statuettes	Gebelen	VI	Kl. Format. 134
worker in orichalcum	Panopolis	600 (?)	P. Paris 20
	Sabbis	VI	P. Cairo 67006
locksmith	Oxyrhynchus	621	P. O. 1921
	Fayum		Lefebvre, Rec. chrét. 76
coppersmiths	Aphrodito	553	P. Cairo 67092
	"	VII	P. Cairo 67288
	"	537	P. Cairo 67123
	Oxyrhynchus	316	P. O. 84
	"	555	P. O. 1913
	"	338	P. O. 85
	Memphis	345	P. Gen. 62
	Tehneh	V/VI	Lefebvre, Rec. chrét. 157
	Panopolis?	VI/VII	P. Hamb. 56
	Hermonthis		Lefebvre, Rec. chrét. 796
	Fayum	VII	Kl. Format. 899, 941
	Heracleopolis	VII	Kl. Format. 419
	Thebes		Crum & White, Epiphan. 349

	unknown		P. Cairo 67020
	"	621 (?)	JEA. XXX (1944), 76
nailsmiths	Arsinoe	V/VI	Kl. Format. 946 f.
leadworkers	Oxyrhynchus	572	P. O. 915, 1000 f.
	"	579	P. O. 135
	Fayum	VI	P. Lond. 1028
	Heracleopolis	IV	PRG. V. 61
ironworkers	Fayum	VI	BGU. 675; Kl. Format. 836
	Oxyrhynchus	316	P. O. 84
	"	427	P. O. 1967
	Tabenna		Book of Paradise, I. 217
	Aphrodito		P. Cairo 67143
	This	VI/VII	P. Paris 20
toolmaker	Aphrodito	VI	P. Cairo 67147

F. Textiles

The weaving of wool while of great importance for the domestic market was of comparatively little importance in the foreign market. Alexandrian linen is ranked fifth in Diocletian's Edict but it seems likely that this position was improved in succeeding centuries. In Idrisi is found a description of the better Egyptian linens of the Arab period and this description may perhaps apply also to the later Roman period: " at Tanis and at Damietta are made stuffs called dabiki and choroub. There is nothing equal to these fabrics which are so fine and rich that a single mantle, embroidered in gold is worth many thousand dinars and without gold, a hundred or two dinars." [40] Egyptian and Syrian textiles, but probably only the very expensive ones, were among the exports sent in trade to the far east.[41]

Egyptian weavers were always quick to imitate other fabrics. Diocletian's Edict speaks of Egyptian linen imitating the fabrics of Tarsus, and there is plenty of evidence that the Coptic weavers were much influenced in the decoration of their fabrics by contemporary art in Syria and Sassanian Persia. Thus the " velis Iudaicis " mentioned by Claudian, which were covered with pictures of Indian monsters, were probably polymita woven by Jews in Alexandria.[42] The willingness of the Egyptian weavers to imitate styles also extended to their imitation of colors. P. Holm. page 206, Lagercrantz,

[40] Idrisi, p. 156.

[41] Hirth, China and the Roman Orient, 253.

[42] In Eutrop. i. 357. Also see Pliny, H. N., viii. 74. Pariset (Hist. de la Soie, i. ch. 3) speaks of Egyptian embroidery, painting on cloth, dyeing with colors, etc.

gives a recipe for a wool dye of a " very beautiful foreign appearance " and in other places there are specific recipes for making imitations of the dyes of Sardinia, Sicily, Phoenicia, Canusium, Tyre and Galatia.

To Egyptian weavers perhaps is also due credit for the invention of the draw loom, an invention generally ascribed to the Chinese, from whom the use of it was said to have been brought into the west by the Persians. There is evidence in Egypt, so it is said, that the draw-loom principle was known and used during the fifth century, examples of such weaving in both linen and wool being found in the tombs, and preceding in point of time the Byzantine silks which have usually been considered the first western examples.[43]

This statement about the draw loom may be questioned. It has been demonstrated that the Coptic two-face weaves could be produced on a loom with four heddles rather than on a draw loom.[44] It is interesting to note that exactly the same technique was used as in modern two-faced blankets produced by the Navajo in New Mexico and Arizona. Probably all of the " draw-loom " weaves from the Caranis excavations were in reality produced on a loom with four heddles and the same statement is probably true of most of the fabrics described by Kendrick. However his No. 537, Reg. 243-1890 seems to require use of a draw loom for the birds appearing in the decoration, though not for the rest of the garment. In the description of the monastery of Epiphanius it is suggested that weaving was done on vertical looms with foot treadles.[45] The rare word *τετράλασον*[46] sometimes translated as " four-thread " may possibly refer to the number of heddles or treadles as does the Latin word polymita, and perhaps the word *τρίμιτον* usually translated as " drill."[47]

Many examples of elaborately embroidered cloths, particularly from Panopolis and Antinoe are known: " tunics of embroidered linen, woolen robes with tapestry panneaux, made in a manner nearly identical with the Gobelin tapestries, bands or squares of brocaded silk decorating cloaks, shrouds in embroidered cloth, cushions of tapestry, scarfs of light printed muslin, embroidered silk, painted cloths where the features of the dead are represented with remarkable realism."[48] The excavations at Caranis produced woven cloths of

[43] Burlington Magazine, xxxv. 167.
[44] JEA. xxv (1939), 40 ff.
[45] Winlock & Crum, i. 68.
[46] PSI. 971 (III/IV).
[47] As SB. 8013 (Arsinoe, A.D. 363).
[48] Diehl, Manuel d'art byzant, 247. For Coptic textiles generally see Gerspach, Les tapisseries coptes; Forrer, Die Gräber u. Textilfunden von Achmin-Panopolis; *ibid.*, Röm. u. Byzant. Seidentextilien; Reigl, Die äegypt. Textilfunde d. K. K. oesterr. Museum; Bock,

wool, linen and hair, knitted woolen bags, flax nets and felt caps.[49] The linen is generally of simple weave with little basket weave or canvas weave. Apparently all was locally produced. In the woolens Miss Wilson believes that the coarse tapestry weaves were also locally produced but that the fine tapestry weaves were brought into the village. She also believes that the cloths produced on horizontal looms (the twills and draw loam weaves), were produced outside of Caranis.

The pure Coptic style in textiles appears first in the sixth century. Among the weaves used by these artizans were the tapestry weave, properly woolen brocade; the woven galloon; and the weave with looped woolen brocading. Some of their productions involved woolen motifs on linen backgrounds. It was in the fifth or sixth century that first appear Coptic imitations in wool of Sassanian silk fabrics, and in silk of Syrian silk fabrics; in the sixth and seventh century imitations in wool of Syrian silk fabrics. Coptic silks of the sixth century are found at Akhmîm, Qau and elsewhere.[50] In both the Berlin Museum and in the Fouquet collection are a series of sketches for Coptic tapestries drawn on papyrus. These show that these fabrics were designed by artists and then executed by ordinary weavers.

Until the fourth century according to finds in Upper Egypt only woolen fabrics were dyed purple. Purple dyed silks first appear there in the sixth century. It is not always possible to tell from the papyri or from archaeological descriptions whether a given textile or garment is made of linen or wool. Thus Winlock and Crum say that no woolen fabrics were found in that excavation and then speak of white linens sometimes with a blue woolen weft.[51] At Qau both woolens and linens were found.

Alexandrian carpets retained their reputation until the middle ages. They were high in price. Synesius mentions one "that might be used by itself as a bedspread."[52] This he had used in Constantinople and after bringing it with him to Cyrene was returning it as a present.

A great variety of shoes have been found in excavations as at

Beschrieb. von Gobelinwirkereien aufgefunden in Kopt. Begrabnisstätten Oberägyptens; Baillet, Tapisseries d'Antinoe au Musee d'Orleans; Dimand, Die Ornamentik der ägyptischen Wollwirkereien; Pariset, Histoire de la Soie; L. M. Wilson, Ancient Textiles from Egypt, and particularly her chapter 1 for technique of weaving.

[49] Wilson, Ancient Textiles, pp. 9 ff.

[50] Brunton, Qau, iii. 26.

[51] Epiphanius i, 71.

[52] Epist. 61. Claudian (In Eutrop. i. 357) also mentions them.

Panopolis but there is no evidence to show that these were exported.[53] In one place sandals are said to have been purchased from linen weavers.[54] At Karara shoes of thin red and black leather were found and sandals with leather or papyrus soles.[55]

Camel's hair was used for carpets, bags and occasionally for garments. Thus Severus speaks of such articles from Egypt worn by monks in Gaul.[56]

The question of cotton is a puzzling one. It is only occasionally mentioned in papyri of the Roman period and even more rarely in Byzantine papyri.[57] At Caranis one skein of cotton thread was found dated apparently to the fourth or fifth century; [58] at Arsinoe cotton makes its appearance after the time of Justinian.[59]

Certain cities seem to have specialized in various types of garments. Thus Xois is mentioned in connection with delmatica and maphoria; Scinopaeus with sindonia, sabana, tularia and mantilia. Alexandria is mentioned in connection with paragauda.[60] Sometimes textiles are described as "local" as in the case of linens in P. Cairo 67006, or as "foreign" as in Kl. Format 83, or as "Egyptian" as in SB. 7033. Some of these latter descriptive terms as also such words as "Damascene" or "Antiochene" may indicate garments made in that particular foreign style rather than the actual place of origin. This seems clear in such expressions as "blanket like a paragauda." [61] Here the blanket is definitely one made to imitate something else.

The list of various articles of wearing apparel that are mentioned in the papyri appears on page 124. For a description of the garments worn by Egyptian monks see Cassian, Inst., 1. 3 f.

Among other miscellaneous products may be mentioned shirts of palm fibre occasionally worn by monks, fish nets of linen twine, cloth and rope of hair, but whether of goat's hair or camel's hair is uncertain.[62]

Hemp was widely grown and widely used. It had been placed under the anabolica taxes by Aurelian and evidence of this levy may

[53] Frauberger, Antike und frühmittelalterliche Fussbekleidungen aus Achmin-Panopolis. Shoes were also made by monks: Palladius, I, p. 458

[54] SB. 7243.

[55] Ranke, Koptische Friedhöfe bei Karara, 33.

[56] Vita S. Martini, 10.

[57] For the latest account see AJP. lxv (1944), 249 ff.

[58] Wilson, Ancient Textiles, p. 50, No. 133; also JEA. 1934, 5 ff.

[59] Reil, Beiträge, 103.

[60] P. Cairo 67006.

[61] SB. 7033.

[62] Winlock & Crum, Epiphanius, i. 71 for linen twine; SB. 7243; SPP. xx. 245 for hair cloth; Kl. Format, 121 for hair rope.

be found nearly a century later.[63] Numerous utilitarian articles were made of the various vegetable fibres and grasses; ropes, mats, baskets. The weaving of palm fibre mats and rope seems to have been a common occupation of the monks. As an example of better work may be mentioned a basket of red and yellow straw found at Karara.[64]

The dyes used were both domestic and imported. Use of the word κογχισταί for purple dyers implies that at one time at least these workmen used dye made from the shell fish. But the bulk of dyestuffs must have been from cheaper, more accessible sources. Thus in one document purple is described as made from a root.[65] Other substances used for the purpose were acacia pods, and safflower.[66]

Among foreign dyestuffs mentioned are purple from Nicaea, and dye from Achaia (?).[67]

The colors and shades produced, to judge from descriptive terms used in the papyri as well as from extant garments, cover an extremely wide range. To get desired results cloth was sometimes dyed more than once. Thus in P.O. 1978 a garment is described as "five-times-dyed."

Both weaving establishments and dye works might be state owned. This is the case of the dye works and carpet works mentioned in P. Goth. 9. In P. Grenf. 87 (A. D. 602) three purple dyers engaged to work at their trade in the factory of a wholesale dealer in hemp until they had completed the particular job given them. They brought their own equipment and apparently left their own shop, if any, for the period of this contract. This is hardly house to house dyeing but the fulfillment of a reasonably large commercial contract. Why the hemp dealer preferred to have the work done on his premises is not stated.

Workers in the weaving and allied trades were often organized as guilds, as the cushion makers at Antinoe.[68] Sometimes women are mentioned as engaged in the business.[69] The low economic status of some workers in the textile trade is indicated by a contract of A. D. 615 in which a purple dyer of This near Abydos agrees to work for two years for a purple dealer in Panopolis for a total wage of 19 art.

[63] SB. 7756 (Oxyrhynchus, A. D. 359). See p. 238.

[64] Ranke, Koptische Friedhöfe bei Karara, 34. Wainwright (Annales des Service des Antiquites xxiv. 108 ff.) describes the manufacture of baskets and rope.

[65] SB. 8013 (Arsinoe, A. D. 363).

[66] Winlock & Crum, Epiphanius, 68 (pods); Quibell, Saqqara, iv. 27.

[67] SB. 8013 (Nicaea); P.O. 1978 (VI).

[68] SB. 7996 (A. D. 430).

[69] Book of Paradise, i. 227: a linen weaver.

of wheat.[70] This may be a contract for part time work but on the other hand it looks like a step toward slavery. Weaving was a common occupation of monks and nuns, for prayers could be recited while the work was being done.

As in Asia Minor, certain Latin textile terms are found transliterated into Greek in the Egyptian papyri. Among these are lanarius, velera, camisium, mantile, caracalla, braccia, cervicalia, colobium, cortina, lanata, lodix, faciale cilicium, pellis as in *πελλοδόχος*, calceus,[71] cuculla, crepida, mappa, stola, velum, pallium, vestis, pulvinus, sudarium (?), papilio, vestiarius, sagum, pluma and its derivatives, solea. The Latin adjectives villosus-a-um seems to be used in connection with a towel or face cloth.[72]

The list of textile products mentioned in this papyri is long and varied. Unfortunately, many of the words cannot be accurately translated. References for most of the words can be found in Preisigke, Wörterbuch, or Reil, Beiträge, and these are not repeated here: *ἀλύσιον, ἀβικτώριον, ἀλαξιμάριον, βῆλον* (Chron. d'Égypt., XIII. 378), *βεστίον, βαλανάριον, βράκιον, βρακάριον, γαυνάκιον, δελματικόν, δελματικόν* (Xoite), *ἐριογλαῦσις, ζωκτήρ, ἱματιοφόρια* (SB. 7033), *ἱμάτιον, καμάσιον* (SB. 7033), *καμίσιον, κολοβιομαφόριον* (SB. 7033), *κουσούλιον* (Egyptian SB. 7033), *καρακάλλιον* (Egyptian SB. 7033), *καρακάλλιον* (foreign), *κερπικάριον, κολόβιον, κορτίνη, κλιμῶτον* (SB. 8013), *κάμασον* (P. Gen. 80,), *κειρία, κάλκιος, καυνάκης* (Crum & White, Epiphan. 339), *λίνον, λανᾶτον, λῶδιξ, λωδίκιον, λινούγια* (SB. 7033), *λανάτιον, μαφόρτιον, μαφόριον* (Xoite), *μαφόριον, μανδήλη* (SB. 7033), *μαππάριον* (P. Gren. 111), *μαλλωτάριον, οὐῆλον* (Crum & White, Epiph. 552), *οὐηλάριον, ὀράριον, ὀθόνιον, πάλλιον, παλλιουδελμάτικα* (P. Oslo 119), *προσκεφάλαιον, παραγαύδιον, προμάξιμον* (SB. 7033), *πακιάλιον, παπυλιών* (Arch. IX. 218), *ῥάκους* (SB. 7243), *ῥάχνη, σινδόνιον, σάβανον, σόλιον, στρῶμα, σπ[αθίς]* (P. Gen. 80), *στρῶσις, στιχάριον, στιχαριομαφόριον, στιχάριον* (Antiochene, P. Fouad 74), *στιχάριον* (linen SB. 7536), *σουπαρων* (SPP. XX. 275), *σάκον τρίχινον* (SB. 7243), *σανδάλιον, σάγιον, τζαγκάριος, ταπήτιον, τύλη, τυλάριον, ὑποκαμάσιον* (SPP. XX. 245), *φακιάριον, φακιάλιον, φουλβίν, φελόνιον* (P. Gen. 80), *φλουμάρικον* (PSI. 959), *χλανίδιον, χλαμύς, χειρομάππιον* (SB. 7033).

Workers in the textile trades are extremely common. They include: (a) linen weavers: othonium dealer, tarsicarius, bandage

[70] Erman & Krebs, Aus d. Pap. d. Kön. Museen, 219. See also the contract in P. Strassb. 40 (A. D. 569).

[71] P. Gen. 80 (IV); SB. 7168 (V/VI).

[72] P.O. 1026 (V).

maker, maker of drill. (b) wool weavers: lanarius, carpet maker, carpet merchant, wool dealer, wool carder, wool shearer. (c) embroiderer. (d) dyers: fullers, purple dealer, purple dyers. (e) net makers: weaver of cushion covers, bag maker, caunace maker, cloak maker, clothes dealer, tailor, weavers. (f) leather workers: shoe makers. (g) hemp worker: rope maker.

The majority of these tradesmen seem to be free workers. A slave tarsicarius seems to be found at Hermopolis,[73] while a woman linen weaver is mentioned at Tabenna,[74] and a woman fuller at Oxyrhynchus.[75] The importance of guilds in the textile industry is difficult to decide. The word κοινόν seems to occur in only four Byzantine papyri, all of the fourth century and none concerned with the textile trade. However guilds of fullers, caunace makers, tailors, shoemakers, occur at Panopolis but perhaps after the coming of the Arabs.[76] Another guild of fullers seems to occur in the Fayum [77] and a guild of purple dyers at Oxyrhynchus.[78]

G. Aromata

The author of the Description of the Whole Earth says that Egyptian aromata were sent to all parts of the world,[79] while another source speaks of the Egyptian drugs carried everywhere by Egyptian ships.[80] Obviously the industry was of very large proportions in the fourth century as it had been earlier. Raw materials were imported into Alexandria as in earlier times from India and the entire nearer East, as well as from Egypt itself, and were there worked up into articles of commerce. The chief sources of supply in Egypt itself seem to have been the Thebaid and the Great Oasis.

In this manufacture of unguents and drugs, the transforming of the raw materials into marketable preparations with high sounding names and higher prices, the Alexandrian artizan displayed great ingenuity and found great profit. One papyrus mentions 192 various substances, animal, vegetable and mineral, that might be used, the majority of which were of local origin.[81] Marcellus Empiricus describes one medicinal preparation made of 71 ingredients.[82]

Antoninus Martyr tells how some of these preparations were sold. He speaks of men from Alexandria with baskets of spices and balsam

[73] P. Leipz. 26.
[74] Book of Paradise, i. 227.
[75] P. Iand. 43.
[76] P. Hamb. 56 (VI/VII).
[77] SPP. iii. 852 (VI).
[78] P.O. 1943 (V).
[79] Ch. 35.
[80] Marcellus, de Medic. carmen, 67.
[81] P. Holm. 238 ff. (Lagercrantz).
[82] xxix. 11.

taking part in the Epiphany at the Jordan and apparently selling their wares in the crowds assembled there.

The accompanying tables give a summary of the principal native products used in the manufacture of aromata and drugs, but the loose use of geographical terms in the ancient and modern sources has resulted in much confusion. In the rents said to have been paid by Egyptian estates to the church at Rome certain aromatica are mentioned: cassia, oleum nardinum, balsam, storax, stacte, crocus.[83] Some of these were definitely importations into Egypt, some may have been native products grown from transplanted shrubs. Thus St. Silvia says that in journeying from Sinai to Pelusium she passed balsam plantations on the way.[84] Earlier the chief, if not the only, source for this product had been Judea.

Synesius tells of receiving in Cyrene some silphium sent him from Alexandria and speaks of it as a rarity.[85] Much earlier the only source of this shrub had been in Cyrene itself.

Natron came from the Wadi 'n Natrun located between Alexandria and the Fayum. The sources of supply were government-owned and were leased as a monopoly. Natron was brought to the Nile valley by way of Terenuthis, the headquarters of the officials who collected the revenue from the operators. As late as the time of Idrisi it was going to " every country." [86]

The reputation of the Egyptian doctors was well established, whatever the merit of their performance. Ammianus Marcellinus for example has this to say: " again, of medicine, the aid of which in our present extravagant and luxurious way of life is necessarily required, the study is carried on with daily increasing eagerness, so that . . . it is a recommendation for any medical man to say that he was educated in Alexandria." St. Augustine mentioned an Alexandrian in Carthage who was esteemed a wonderfully skilled surgeon, while the Description of the Whole Earth speaks of Alexandria as a medical center. The chief reason perhaps for the excellence of the Alexandrian school was, as Galen had earlier pointed out, the opportunity afforded there for dissection and the resulting knowledge of the human body and its organs. There were municipal doctors in every city and even in some villages. Most of these seem to be public officials.

Along with those doctors who conscientiously endeavored to do

[83] Liber pontificalis 178, 179 (Duchesne).
[84] Pilgrimage of St. Silvia, 40.
[85] Synesius, Epist. 106 (A. D. 409).
[86] Page 160.

their best, Egypt was also known as the home of the quack. Of this second class Hermes Trismegistus is perhaps the best known example. To this group belong those engaged in the adulteration and imitation of popular drugs and aromata. Thus Paul of Aegina, quoting Galen, gives a list of 202 objects for which named substitutes could be had.[87] Most of these undoubtedly were known and used by the Egyptian manufacturer of the Byzantine age.

AROMATICA ETC.

SUBSTANCE	PLACE	DATE	REFERENCE
aromata	Egypt		Expos. tot. mundi, 35
	Alexandria		Antoninus Martyr 11
	Diaspolis		Alex. Tralles I. 343
	Dionysias	c. 350	P. Lond. 429
pharmacum	Egypt		Alex. Tralles II. 139
drugs	"		Marcellus, de Med. 64 ff.
		340	BGU. 21
myrrh	Troglodytic (?)		Vegetius, Ars Veter. II. 22
myrobalanum [88]	Egypt (?)		Marcellus, de Medic. IV. 31
hammoniacum [89]	Egypt		Pelagonius 94
semen cucurbitae	"		Vegetius, Ars Veter. I. 17 Pelagonius 20
salt [90]	"		Vegetius, Ars Veter. II. 48 Pelagonius 200
	Aphrodito	VI	P. Cairo 67141
sory [91]	Egypt		Oribasius, Synop. II, 56
sinopis [92]	"		Vegetius, Ars Veter. II. 48 Marcellus, de Medic. XV. 87 Pelagonius 194, 252
natron [93]	Egypt		Marcellus, de Medic. IV. 28
	"		Paul of Aegina, VII. 12; III. 75

[87] vii. 25.

[88] Both balanus and myrobalanus are the fruit of the hyperanthera moringa.

[89] Originally this was a name for rock salt rather than sal ammoniac which first came to Europe in the seventh century and which was first known as sal armeniacum: see Puschmann, Alex. of Tralles, i. 493.

[90] Used in medicine and here called "Alexandrian."

[91] Copper sulphate.

[92] Called Alexandrian by Marcellus and Pelagonius.

SUBSTANCE	PLACE	DATE	REFERENCE
	"		Alex. Tralles I. 399
	"		Pelagonius 19
	"	c. 346	P. Lond. 231
		IV	Epiphanius, Adv. Haereses, III. 1
cummin [94]	Egypt		Vegetius, Ars Veter. I. 42; III. 28
			Pelagonius 370
	Ethiopia		Paul of Aegina, III. 53
	—	IV/V	Sitzb. Wien. Akad. 149, NN. 74
" earth "	Egypt		Marcellus, de Medic. II. 15
			Paul of Aegina, VII. 3
			Alex. Tralles, I. 507
succum urticae [95]	Egypt		Marcellus, de Medic. VIII. 115
pulp of bean	"		Marcellus, de Medic. IX. 54
mastich	"		Paul of Aegina, VII. 3
ricinus	"		Oribasius, VII. 2. 6
lotus seed	"		Oribasius, XV. 1. 11
	Fayum		Kl. Format 578
opium [96]	Egypt		Alex. Tralles, II. 65
			PSI. 49
acanthus	Egypt		Oribasius, XIV. 23
			Paul of Aegina, III. 19
drugs for horses	Oxyrhynchus	552	P. O. 145
rose water	Oxyrhynchus	VI	P. O. 155
salt of ammonia	"	IV	P. O. 1222
basil seed	"	IV	P. O. 1222
balsam	"	IV	P. O. 1052
woad	Oxyrhynchus	IV	P. O. 1052
silphium	Alexandria	409	Synesius, Epist. 106
cedar oil	Oxyrhynchus	V/VI	P. O. 1924
alum	Oxyrhynchus	IV	P. O. 1288
salt works	general	IV	Epiphanius, Adv. Haereses, III. 1

[93] Called Alexandrian by Marcellus and Ethiopian by Paul of Aegina.
[94] Caraway. Vegetius and Pelagonius call it "Alexandrian."
[95] Here called Alexandrian.
[96] Called "Theban" by Alexander of Tralles.

SUBSTANCE	PLACE	DATE	REFERENCE
yellow orpiment	Oxyrhynchus	V	P. O. 1922
sweet oil			Eg. Ex. Fund, Rep. 1906/7. 10
stagma	Oxyrhynchus	VI	P. O. 155
antimony [97]	—	IV	P. Lond. 46
eye salve		VI	P. Cairo 67006
euphorbia		VI	P. Cairo 67141
gum arabic		VI	P. Cairo 67141
galbanum		IV	P. O. 1146
saffron root		VI	P. Cairo 67141
scammony	—	V/VI	PSI. 291
opobalsamum	—	IV	P. Harris 98
feverfew	—	IV	" "
vegetable salt		IV	" "
marjoram		IV	" "
laurel berries		IV	" "
spurge		IV	" "
bitumen	Thebes		Crum & White, Epiph. 622
resin	"		" " "
beeswax	"		" " "

ARTISANS CONNECTED WITH AROMATA, DRUGS, ETC.

PROFESSION	PLACE	DATE	REFERENCE
medical schools	Alexandria		Amm. Marc. XXII. 16, 18 Augustine, de civit. dei XXII. 8 Expos. tot. mundi, 37
physicians [98]	general		Julian, Epist. 426A
veterinary	Oxyrhynchus		P. O. 92
	Oxyrhynchus	VI	PSI. 955
	Hermopolis	IV	PRG. V. 60; P. Leipz. 101
flower seller	Antinoe	570	P. Cairo 67156
barber	Aphrodito	VII	P. Cairo 67288
		VI	P. Cairo 67147
garland maker	—	IV	P. Lond. 125

[97] Powdered rather than "Coptic" as Reil 146.

[98] Because of the large number and wide distribution of physicians mentioned in the papyri, a list of references is not deemed necessary.

PROFESSION	PLACE	DATE	REFERENCE
undertaker	Great Oasis	308 (?)	P. Grenfell 75, 76
	Panopolis	VI/VII	P. Hamb. 56
bitumen dealer	Fayum	—	SB. 5255
soap dealer	Hermopolis	IV	PRG. V. 60
perfume dealer	Fayum	IV	Kl. Format 972

H. Writing Materials

Egyptian papyrus remained the chief source of paper. The author of the Description of the Whole Earth says that Alexandria alone sent paper to all the world. Jerome speaks of papyrus sold by Syrian merchants in Gaul. In Merovingian times Marseilles was the Gallic entrepot for the importation of paper. Elsewhere it is mentioned in Italy and Syria. It is interesting to note in the Liber Pontificalis that some estates in Syria that were owned by the Roman church included paper among the items paid by them as rent to the owner. If the account is correct, this paper must have been brought from Egypt. At the beginning of the period treated here no other writing material in the world was a serious contender with papyrus in quantity or price, and as a matter of fact exportation of papyrus continued in volume until after the Arab conquest.[99]

The source of supply was apparently the Delta. As in earlier periods different qualities seem to have been produced for different purposes. Thus a fourth century document speaks of a grade called hieratica which is one of the seven grades described by Pliny.[100]

On the majority of sites the use of ostraca seems extremely limited in the Byzantine period though they are very common in the Theban monasteries. Several times the lack of papyrus is noted and apologies are made for using an ostracon.[101] This may be due either to the poverty of the writer or to the fact that supplies of paper were only available in the larger centers.

It seems probable that the anabolicum on papyrus continued at least until the time of Justinian and perhaps longer.[102] An edict of A. D. 536 seems to require public notaries in Constantinople to use exclusively paper that bore a governmental certificate.[103] The purpose of this might be to provide an outlet for government-owned paper in a city where according to the same edict there was great

[99] See Lewis, L'industrie du papyrus, 88 f.
[100] P. Lond. 46. See Pliny, H.N. xiii. 74.
[101] As Crum & White, Epiphanius 126.
[102] The latest mention of the anabolicum seems to be P.O. 1136 of A. D. 420.
[103] Justinian, Novellae xliv. 2.

abundance of it. A law written a century earlier but still in force seems to indicate the transfer of the sale of paper owned by the government from provincial governments to associations who had leased the privilege [104] This would still leave in private hands the sale of paper not taken by the government as payment for the anabolicum. Of more limited use than papyrus was parchment. Describing a maker or seller of this material is the Latin word membranarius which is found transliterated into Greek.[105]

Allied to the manufacture and sale of writing material were the preparation of pens and ink. It is perhaps just an accident that writing pens are mentioned in Diocletian's Edict on Prices while paper is not.

PAPYRUS

MATERIAL	PLACE	DATE	REFERENCE
papyrus	Tampeti	305	P. O. 895
	Alexandria		Exposit. tot. mundi 36
	Gaul	369	Jerome, Epist. 130. 7
	"		Sidonius, Epist. IV. 3
	"		Ausonius, Epist. XV. 48
	Italy		Symmachus, Epist. III. 12
	Aquileia	374	Jerome, Epist. 7
	Syria		" " 5
	Italy		Cassiodorus, XI. 38
	Oxyrhynchus	IV	P. Lond. 304; P. O. 1297
	"	V/VI	P. O. 1924
	"	VI	P. Cairo 67058
	"	555	P. O. 1913
	Hermopolis	IV	SPP. XX. 81
	Egypt	IV	Epiphanius, Adv. Haereses, III. 1
writing materials	Tampeti	305	P. O. 895
parchment	Oxyrhynchus	IV/V	P. O. 2156
ink from wax writing tablet	Alexandria	IV	P. Fouad 74
	"	IV	" 74
reed pens	Thebes		Winlock & Crum, Epiph. 93

[104] C. J. xi. 18. 4 (A. D. 429).
[105] SPP. xx. 194.

MATERIAL	PLACE	DATE	REFERENCE
reed marsh	Egypt	IV	Epiphanius, Adv. Haereses, III. 1
fine letter writer	Aphrodito	VII	P. Cairo 67288
papyrus dealer	Fayum	VII	BGU. 319
parchment worker	—	VI	SPP. XX. 194
short hand writer	Heracleopolis	IV	PRG. V. 61

I. Slaves

Egypt has never been a slave owning country as that term is generally used or in the sense that Italy was in the first century. The dense population of Egypt has always provided an abundance of laborers for every need. Wages have been so low, owing to this superabundance of labor, that there has never been a need for slave labor or any additional profit to be obtained from its use. Wages paid farm labor would support life and no more; the cost of feeding and clothing a slave, the interest on the investment and proper depreciation would at least equal the wages paid him as a free laborer. So the slaves mentioned in the papyri are for the most part household attendants.

The παιδάρια may be explained in the case of the Goths in Apion's household or in military contingents either as children or as slaves but more probably were the former. In private accounts the dispensation of grain, clothes, or wine to παιδάρια must in the main be paid to slaves. There is slight evidence for slaves in Apion's accounts, but the boys sent to the Fayum with letters were probably of this status,[106] and the distributions of food and clothing on the estate of Theodora were undoubtedly for slaves.[107] While the law protected the freeman from flogging, the slave was not exempt.[108] It was apparently not unusual for persons to give themselves up to domestic service in return for a loan of money or to satisfy a debt, or for the parent to pledge his children for a debt.[109] The seizure of a person for debt is recorded in PSI. 824 where the complainant demands the

[106] P.O. 1921.

[107] P. Baden 95.

[108] P.O. 1186, but see P.O. 903 where a woman protests her husband's conduct toward her slaves.

[109] P. Iand. 62; in P. Cairo 67023, A. D. 569, a brother pledges his sister.

return of property seized but seems quite willing that his wife should remain in bondage until the debt is paid. The contracts of παραμονή usually involve a loan for which the debtor gives his services until the loan is paid and in most cases this is virtual sale of one's self to slavery.

When slaves were held in common by different individuals and one party emancipated his slave, the other was similarly obligated by Roman law, but in a similar case at Oxyrhynchus the other party sought to restrain the action.[110] The release of a free woman from slavery was requested of a bishop,[111] and apparently the vindicatio in liberation of Macaria was the subject of an action at Oxyrhynchus.[112] Slaves were mostly house-bred, and few importations from abroad are noted.[113]

In certain households negro slaves from Ethiopia and elsewhere were desired. Jerome refers to this practice, adding that in common speech Ethiopians go by the name Silverlings, an early version of our own slang "Snowball." John of Nikiou tells of a certain Azarias who, in the time of Mauricius, mustered a large force of Ethiopian slaves and bandits in the province of Akhmîn and with them seized the imperial taxes. These Ethiopians may have been former prisoners of war.

Ethiopian slaves passed in transit to other parts of the empire but the sale of Egyptians abroad was rare. Such export had been forbidden by the gnomon of the idiologus and so far as known this was never repealed. Run-away slaves usually took refuge in Alexandria.[114] While the synagogue ransomed slaves of their sect, the only evidence for the activity of the Christians in this regard comes from the biography of John the Almoner. Mr. Bell publishes a Christian letter where a certain Pamonthius was imprisoned for debt and his children seized in bondage. Money was collected for the release of Pamonthius but the correspondence says nothing about the release of the children.[115]

[110] PSI. 452.
[111] SB. 6097.
[112] P.O. 1837.
[113] The references will be found under "Imports."
[114] PSI. 872; P.O. 1643; SB. 6222.
[115] P. Lond. 1915, 1916 (A. D. 330-340) published in Jews and Christians in Egypt.

SLAVES

	PLACE	DATE	REFERENCE
slaves	Dionysias	337/350	P. Lond. 251
	Fayum	VI	Kl. Format 1134
	Great Oasis	307	P. Grenf. 78
	Hermonthis	338	P. Leipz. 97
	Hermopolis	ca. 350	SB. 8007
	"	VI/VII	P. Baden 95
	Oxyrhynchus	368	P. Oslo 18
	"	IV	P. O. 903, 1423; PSI. 452
	"	V	P. Amh. 144
	"	551/67	P. Princ. 96
	"	555	P. O. 1913
	"	VI/VII	P. O. 1847
	"	612	P. Amh. 157
	"	621	P. O. 1921
	Unknown	c. 341	P. Princ. 151
	"	VI	P. Grenf. 97
negroes	general	IV	Jerome, Epist. 40. 2
slave dealer	Hermopolis	VI	Archiv. III, 415

MANUMISSIONS

DATE	REFERENCE	PLACE	TRANSACTION
354	P. O. IV p. 202	Elephantine	Emancipation of Aurelius Sarapammon, Tklas, and her daughter Aurelia Lusia.
567	P. Cairo 67312	Antinoe	Testamentary emancipation.

SALES OF SLAVES

DATE	REFERENCE	PLACE	TRANSACTION
337-350	P. Lond. 251	Fayum	Two slaves sold for 2400 T.
ca. 350	SB. 8007	Hermopolis	Female slave aged 20. 913 T. 2000 dr.

DATE	REFERENCE	PLACE	TRANSACTION
359	BGU. 316	Fayum	(Contract of sale written in Ascalon). Female slave aged 14. 18 solidi
V	P. Princ. 85.		Fragmentary
V	P. Cairo 67120		Sale of two females (mother and daughter) house-bred.
	67023		Menas, reduced to poverty, pledged sister for a loan of one solidus. Her sister seeks to recover.
	Archiv III. 415	Hermopolis	Sale of Ethiopian slave girl about 12 years old and free from all defects. 4 s. Sold by slave traders (*σωματέμποροι*).
ca. 600			John the Almoner (C. XXII) relates the story of a *τελώνης* who sold himself as a slave for 30 s.

CONTRACTS OF APPRENTICE AND PARAMONE

377	PSI. 287 Oxy.	Apprentice to weaver of linen for 8 months. Yearly wage 300,000 den. and a clean shirt.
IV/V	P. Aberdeen 59.	Apprentice to embroiderer's trade. Deposit of 8 s.
407	P. O. 1122	Agreement to furnish personal service in return for food and clothing
432	P. Reinach 103	Lease of services for one year in return for a loan of one solidus.
525	P. Iand. 43. Oxy.	Receipt of 2½ art. of wheat given by fuller for working at her trade for a year.
569	P. Strass. 40.	Colluthus binds himself for four years as *κατάδουλος παῖς* receiving 10 art. wheat, 4 art. barley, 12 sestarii of oil, 24 cnidia of wine and 19 c. yearly for clothing. Will perform all services for his master. Penalty 12 s.

568	P. Cairo 67305 (SB. 5656) Antinoe.	Agrees to live with master as son with father. To teach apprentice his trade. Master will not drive him away except for laziness and disorder. Apprentice to bring 6 c. monthly from his pay to meet cost of his living and as interest on the two solidi which his master had paid to his creditor.
VI	P. Iand. 62.	Loan of 20 (plus) solidi for which sister is given as pledge (*πᾶσαν δουλικὴν [ἔχειν] χρείαν*). She is to be clothed and fed by her master. Her brother cannot take her away until debt is paid.
VI	P. Princ. 78.	Complaint that son had not been released from service for a debt.
VI	P. Lond. 1706. Aphrodito	Agreement to teach trade. Receives 3 c. in advance.
604	SPP. XX. 219 Arsinoe	A widow on receipt of a loan of one solidus hires out her son as stableboy for a yearly wage of one solidus, 7 art. wheat and 6 sestarii of oil.
606	SB. 4503	Agreement of Aur. Dioscurus, purple seller in the Thinite nome, along with his mother and another purple seller to work for two years for 19 artabas of wheat (9 art. first year, and 10 in the second).
VII	SB. 4499	Lease of service for one year. 9 artabas of wheat and 23 c. (1 s. paid in advance?)
Byz.	SB. 4739	Lease of service for one year. 1 s. less $7\frac{3}{4}$ c. and a certain amount of grain.
	CPR. Coptic 152.	Lease of service for a year. 12 art. wheat, 6 of barley, 12 sestarii of oil, 24 cnidia of wine.
	CPR. Coptic 153.	Fragmentary. Wages are 16 art. wheat, 8 of barley.
	CPR. Coptic 154.	Frag. Wages are 30 c., 28 casks of wine, 2 baskets of wood.
	BGU. 310. Fay.	Pronoetes leases service for a year. Receives $1\frac{1}{3}$ sol. in advance.

J. Trade Routes

In the tables which follow have been listed references to the internal as well as to the foreign trade routes. Not the most important but perhaps the most interesting of the latter is the passage in Leontius describing voyages to Britain made by ships owned by the church of St. John the Almoner, which went out laden with grain and returned with tin which the Saint miraculously converted into silver as being the better profit. The church in Alexandria during the early seventh century was actively engaged in commerce, its ships going not only to Britain but also to Sicily and the Adriatic. The cargoes included silk and silverplate as well as grain, and the number of ships was said to be more than thirty.[116] As early as the fourth century mention is made of boats owned by the Alexandrian church engaged in traffic on the Nile.[117]

Palladius mentions two brothers " whose names were Paesius and Isaiah, who were the sons of a certain merchant who traded in Spain." Unfortunately he gives no hint of the commodities in which the father dealt. A friend of Sulpicius Severus speaks of meeting Egyptian merchants on the Tuscan Sea on their way to Rome. Cosmas Indicopleustes, an Alexandrian long engaged as a merchant, says that he sailed on business in the Mediterranean, the Red Sea, the Persian Gulf, as well as to India and Ceylon. Synesius says that on one voyage from Alexandria to Cyrene, the captain and more than half the crew were Jews; on other trips to the same place he says that the boats were manned by sailors from Carpathos.[118]

At the head of the Red Sea were three important trading centers, the cities of Aela and Clysma and the island of Jotabe. The most important from the standpoint of Egyptian trade was Clysma.[119] From here trade routes ran down the eastern shore of the Red Sea to Ocelis in southern Arabia and along the western shore to Adulis, the chief port of the Axumites or Ethiopians. At Ocelis or Adulis the Byzantine merchants obtained the wares of India and China, for few of them went further east, the Arabs and Ethiopians being the active intermediaries in this trade. Obviously the connection with the far east was not as favorable as that through Persia. That country controlled the land routes to the Mediterranean and the head of the Persian Gulf and it maintained a strict control over trade by these routes. Because of the constant wars with Persia, the land

[116] Vita S. Ioann. 27.
[117] Wilcken, Chrest. 434 (A. D. 390).
[118] Synesius, Epist. 4 for Jews; Epist. 41, 51 for Carpathians.
[119] See Antoninus Martyr 41.

routes were subject to frequent interruption. It was in the hope of providing a more stable trade route to the east that Justinian undertook active diplomatic negotiations with the Axumites.[120] But despite the efforts of the Axumites they could not break the Persian control of the silk trade. It was not until the introduction of the silk worm to the Mediterranean that the situation was improved. Through the Axumites however came large quantities of aromata from the African coast, Arabia and Ceylon, ivory, precious stones; all to be reworked probably in the shops of Alexandria.

A hint as to the size of this eastern trade is afforded in the account of the war between the Axumites and Homerites in A. D. 524/5.[121] To provide transports for his troops the King of the Axumites seized the trading ships then lying among the Farsan islands: 15 from Aela, 20 from Clysma, 7 from Berenice, 2 from Jotabe, 7 from Farsan itself and 9 from India.[122]

The view just expressed that the Ethiopians were the chief intermediaries in the trade with the Far East is that held by Warmington and Diehl.[123] Bell, however, seems to believe that it was largely a matter of direct relations between Egypt and India.[124] The papyrus (A. D. 359) which he discusses mentions sailors engaged in the Indian trade, but Justinian's negotiations with the Ethiopians clearly indicate that they were then the means by which the emperor was planning to facilitate the far eastern trade. The fact that the Axumite gold coins of the fifth and sixth centuries seem to have been struck on the basis of the Byzantine triens also indicates the closeness of the commercial relations between the two countries.[125]

After the time of Justinian it seems that the importance of the Red Sea route to India declined. The chief routes then were through Syria or Asia Minor.

Some statements indicate the size of ships and the speed of transport. Constantine moved an obelisk from Heliopolis to Alexandria, and then to carry it to Rome a " ship of a burden hitherto unexampled, requiring 300 rowers to propel it, was built." [126] Julian speaks of a special freight boat built by Constantius to carry an

[120] See Diehl, Justinien, 390-395.

[121] Dillman in Abhand. Akad. Wissensch. (Berlin), 1880, 38.

[122] See the Acta Sanctae Arethae.

[123] Diehl, Justinien, 535.

[124] In Mel. Maspero, ii. 109.

[125] See Riv. Ital. Num. 1926.

[126] Amm. Marc., xvii. 4.13. The obelisk weighs about 440 tons or some 55 tons less than the obelisk and pedestal that Caligula brought to Rome. See Torr, Ancient Ships, 25 ff.; Köster, Das antike Seewesen.

obelisk to Constantinople.[127] Procopius says that the merchant ships with Justinian's fleet in A. D. 533 carried 120 to 2000 tons but probably this is an error for 120 to 200 tons. If one assumes that the grain ships carried an average of 150 tons then the shipper who received 4% of the grain plus one solidus for each 1000 artabae for the freight charge to Constantinople had a gross income of about 7 solidi plus 250 art. of wheat per trip. Under the arrangement made by Justinian for payment at the rate of 1 solidus for each 100 measures (medimni or artabae?) the same cargo would entitle the carrier to about 33 solidi. John the Almoner (ch. 10) mentions boats owned by the church that carried 20,000 measures (artabae or medimni?) of grain.

There seem to be no statements as to the time needed for the trip from Alexandria to Constantinople. To Antioch about three days was necessary; Synesius says that it took five days to make the trip to Cyrene; Sulpicius sixteen days for the trip to Bethlehem[128] and thirty days for the trip to Marseilles. Palladius speaks of crossing Lake Mareotis in 1½ days.[129] There seems some confusion here for he undoubtedly means that the entire trip from Alexandria to the Nitrian monasteries took a day and a half. Some documents however show a considerable delay in the transmission of news. Thus a lease from Oxyrhynchus signed on 3 October 306 was dated according to the year of Constantius Chlorus who had died in Gaul and had been succeeded by Constantine on 25 July 306.[130]

As at all times in its history the chief means of transport in Egypt was by boat up and down the river. Unlike conditions in the first and second centuries when local transit dues are commonly mentioned, such charges on internal traffic seem unknown in the Byzantine period.

Numerous types of boats are mentioned in the papyri of the Byzantine period.[131]

TYPE	DATE	REFERENCE
ἁλιαδιτικόν	VI	Kl. Format 1125
λιβέρνος[132]	VI	P. O. 2032, 2042
λιβυρνάριον	IV	Sitzb. Wien. Akad., 1901, p. 21, E 930

[127] Julian, 443 B.
[128] This may have been all by land.
[129] Book of Paradise, i. 143.
[130] P.O. 102.
[131] See Aegyptus, x (1929), 105 f.
[132] This and the next word are transliterations from the Latin.

TYPE	DATE	REFERENCE
κάραβος	VII	Kl. Format 900
πλοῖον		passim.
πλοῖον ταμιακόν	326	P. Amh. 138
πλοῖον δημ. πολύκωπον	338	P. O. 86; PSI. 298 (IV)
λουσώριον	IV/V	P. O. 1048
σκαφίδιον	VI	P. Cairo 67151
πλοιάριον	VII	P. O. 1862
πλοῖον θαλάσσιον.	IV	P. O. 1288
πλοιάρια σκαφόπλωρα	315	P. Cairo Pr. 34
σκάφος	VI	P. Cairo 67030
πάκτων	345	PSI. 948
πακτωνάριον		SB. 4323
πλοῖον γεουχικόν	345	PSI. 948
καρίς	VI/VII	P. Iand. 18
πλοῖον ἴδιον ἑλληνικόν	343	P. Good. 14
πλοῖον δημόσιον	316	P. Cairo Pr. 34
πλοῖον πραιτώριον	IV	Chrest. I. 434
πλοῖον καθολικῆς ἐκκλησίας Ἀλεξανδρείας	390	Chrest. I. 434
πλοῖον τῆς Μετανοίας	VII	P. Lond. 995, 996, 1152
" " "	VI	P. Cairo 67286

These boats were owned by the church, by the state and also by private individuals. Church owned boats first appear toward the end of the fourth century. At the end of the period treated here they seem to be used in connection with the grants of grain made to certain churches about the middle of the sixth century. Whether this is true in the fourth century is not clear.

TRADE ROUTES, GROUP 1

Routes on the Mediterranean which centered in Alexandria. In some cases the text mentions no specific Egyptian port.

The lists of freight rates and of additional prices recently found in Caria and Italy and published in TAPA 1940, 157 ff. are disregarded here and elsewhere in this study because it seems to the present writer that they have not been proved to be parts of Diocletian's Edict. For example the new section gives the price of a " foot " of Scyros marble (whatever that dimension means) as 40 denarii. This is equivalent in the older sections to the price of two wooden stakes or of a pair of ducks or of a rabbit. In general the loose method of

quoting marble in the new section differs from the exact method of quoting timber in the older sections. Further the prices of marble seem low in comparison with wood.

TO	DATE	REFERENCE
Palestine		Cassian, Instit. IV. 31
	VI	Antoninus Martyr, 11
		Sulp., Dial. I. 8. 1 [133]
		Jerome, Epist. 108. 14 [134]
		" Pilgrim. S. Paula, 19 [135]
Antioch		Miracles St. George, 263, Budge [136]
	IV	Patrol. Orient. I. 385 [137]
Greece	IV	Gregory Naz., Orat. XVIII. 31 [138]
Piraeus		Synesius, Epist. 136
Thessalonica		Mark, Porphyry 4
Constantinople		C. Th. XIII. 5. 7; XIV. 18. 20
		Socrates, H. E. VI. 15
		Sozomen, H. E. VIII. 17
		Procopius, de Aedif. VI. 2
		Synesius, Epist. 129
	IV	Gregory Naz., Orat. VII. 8v
		Agathias, 99 [139]
Adriatic		Vita S. Ioan. 28
Sicily		" " 13
		Jerome, Vita S. Hilarion, 35 [140]
Rome	IV	Book of Paradise, I. 234
Italy		Jerome, Epist. 97. 1
		Sulp. Severus, Dial. III. 14
Gaul	VII	Vita S. Ioan. 35
Marseilles		Sulp. Severus, Dial. I. 1
Narbo		" " " I. 3 [141]
Spain		Book of Paradise, I., p. 157
Britain		Vita S. Ioan. 10
Cyrene		Synesius, Epist. 129, 51, 4

[133] 16 days to Bethlehem. Perhaps by land.
[134] Pelusium to Gaza.
[135] Pelusium to Ascalon.
[136] An Alexandrian ship taking passengers at Antioch for Egypt is mentioned.
[137] The trip was made in three days.
[138] An Aeginetan boat going from Alexandria to Greece via Rhodes.
[139] By way of Cos.
[140] From Paratonium. Merchants are mentioned.
[141] A merchant vessel making trip in 30 days.

TO	DATE	REFERENCE
Utica		Sulp. Dial. 1. 6. 1
Carthage		Stadiasmus Maris Magni
General	342	P. O. 87 [142]

TRADE ROUTES, GROUP 2

INTERNAL TRADE ROUTES

ROUTE	DATE	REFERENCE
Nile to Red Sea		John of Nikiou 72
	332	P. O. 1426
Pelusium to Sinai	385	Pilgrim. S. Silvia, 40
Egypt to Sinai	VI	Antoninus Martyr, 36 [143]
On the Nile		
boatmen at Koma	534	P. O. 142
Tacona	550	" 133
Oxyrhynchus	338	" 86 [144]
"	342	" 87
"	378	" 1752
"	IV	" 1223, 1749, PSI. 298 [145]
"	481	" 1949
"	V	" 1071, 1871, P. Amh. 144
"	509	" 1885 [146]
"	555	" 1913
"	556	" 1914
"	572	Kl. Format 774
"	583	P. O. 136
"	VI	" 154, 1947, 2003
"	VI/VII	" 1875
"	612	" 151
"	VII	" 1862
Aphrodito	326	P. Amh. 138
"	531	P. Cairo 67030
"	570	P. Lond. 1714
Memphis	599	BGU. 255
Theadelphia	IV	P. Thead. 47

[142] A seagoing vessel owned in Oxyrhynchus. Another is mentioned *ibid.* 1288 (IV cent.).
[143] By camel.
[144] Public rowing vessel of 700 art. capacity.
[145] Routes to Niciu, Heracleopolis and Cynopolis mentioned in P.O. 1749 and a public boat in PSI. 298.
[146] A ferry.

TO		DATE	REFERENCE
	Antaeopolis	—	P. Cairo 67280
	Coptos	315	P. Cairo Pr. 34
	Nilopolis	IV	P. Lond. 1823 [147]
	Antinoopolis	569	" 1712
	Hermopolis	343 (?)	SPP. II, p. 34
	"	380	P. Flor. 75
	"	402/3	P. Grenf. 80 f.
	Syene	580	P. Lond. 1725; P. Mun. 3
	"	581	" 1726; P. Mun. 4
	"	583	P. Mun. 7
	"	585	" 9
	"	586	P. Lond. 1732
	"	594	P. Mun. 13
	"	611	P. Lond. 1736
caulker	Fayum	VII	Arch. V. 296
boat builder	Oxyrhynchus	535	P. O. 1893
	Aphrodito	VI	P. Cairo 67143, 67147
		VII	" 67288
	Fayum	VII	Kl. Format 904
	Panopolis?	VI/VII	P. Hamb. 56
Trajan's Canal		322	P. O. 1426
		423	PSI. 87, 689
Alexandrian Canal		359	SB. 7756

TRADE ROUTES, GROUP 3

TO THE EAST

Berenice or Myoshormos to India		Jerome, Epist. 125. 3
Clysma to India		Antoninus Martyr, 41
		P. Lond. 1162 Verso [148]
Egypt to India	359	SB. 7756
		Cosmas Indico. passim

K. Imports

What Egypt exported was of far more importance both to her and to the rest of the Mediterranean world than what she imported. As Jerome says " once more with the return of spring I enrich you with the wares of the east and send the treasures of Alexandria to Rome." [149]

[147] Public boats are mentioned here and in the following reference.
[148] A list of sailors.
[149] Epist. 91. 1 (A. D. 402).

The country imported little that was in widespread demand among the people, for the bulk of the population then as now was without the means to buy anything but the bare necessities of life and all these necessities were produced at home. The imports aside from luxuries for the well-to-do were largely raw materials such as aromata, metals, gems, silk, etc. which were re-worked in Egyptian shops and then exported.

The jar seal with the Latin stamp RATIA found at Karanog undoubtedly represents a foreign importation.[150]

The Life of St. John the Almoner says that Egyptian vessels carrying grain went to Britain and brought back tin but the historical value of the statement is not helped by the additional story that the saint changed the tin to silver as being the better profit.

With Gaul trade connections were maintained throughout the period treated here, and certain Gallic products are mentioned in the sources, among them copper, cadmia, wormwood, slaves and possibly soap.

From Spain came tin and doubtfully olive oil. In P. Holm. 153 tin is described in this way: " that the western Iberians from whom it is obtained, and the Romans, call bulla." The olive oil said to be Spanish by the editors of P. O. 1862 and 1924 may conceivably be a product of the village Σπανία located near Oxyrhynchus.

From Greece and the Greek islands came numerous items used in the preparation of drugs and ointments. These are listed in the table which follows. In a sixth century document from Oxyrhynchus there is a possible reference to a garment from Achaia. In this connection should be mentioned the Athenian merchant, spoken of by Synesius, who comes to Alexandria with shoes and various garments.

From elsewhere in Europe came race horses from Constantinople, chrysocolla from Macedon, opobalsamum from Tomi and indicum from Scythia. The last two can hardly be products that originated in the districts named but undoubtedly are eastern products brought into the empire through the Black Sea.

Products from Asia Minor are in the main objects used in the manufacture of drugs and ointments. Exceptions are parchment, wine, dyes and possibly building stone. As in earlier periods liquid measures are often described by such terms as Rhodian, Cnidian, Colophonian. Whether any of these terms actually represent current imports or are simply descriptive terms for the size of the measure is uncertain but the latter assumption seems the more likely. Parch-

[150] Wooley and Randall-MacIver, Karanog, 79.

ment also may have been locally produced rather than imported. In the monastery of Apa Jeremias at Saqqara certain column bases are said to be of Asia Minor marble, but it is as possible that these were older stones now being reused as that they were new importations.

The imports from the Syrian districts include more objects of daily use than is the case with imports from any other district. The Description of the Whole Earth definitely states that Ascalon and Gaza sent wine to Egypt. To be so mentioned one must infer that these importations were on a considerable scale.

Pickled fish from Gaza is mentioned at Oxyrhynchus. A few pieces of non-Egyptian glass, presumably from Syria, have been found at Caranis. Garments from Damascus and Antioch are mentioned at Alexandria, Lycopolis and Sabbis. Textiles found in the excavations are sometimes described as foreign, but here the knowledge and prejudice of the excavator are too large a factor to make such ascriptions trustworthy. Thus certain pieces from Caranis are called " imported " by one, and native Egyptian by another.[151]

Gaza pots or perhaps pots of Gaza style are mentioned in one papyrus [152] while writing pens from Antioch are mentioned in another.

From Mauretania came garum, from Cyrene sal ammoniacum. It is curious, but the only mention of silphium is a statement that it was sent from Alexandria to Cyrene.

From Ethiopia much more must have come than is mentioned in the sources, chiefly ivory and wild animals from the African hinterland and many Arabian and Indian products brought to the African ports by Ethiopian merchants and there transferred to Egyptian merchants. The ebony and ivory caskets mentioned in one sixth century document probably belong to the group of things so imported.[153]

The two chief imports from Arabia, India, and the far east were silk and pepper. Pepper seems to have been brought into the western markets chiefly by boat, being unloaded at some Red Sea port and thence carried to the Mediterranean for distribution throughout the empire.

Silk because of its relatively higher value could be carried overland from China or India, though probably a part of the supply was always brought by sea to one of the ports on the Red Sea or the Persian Gulf. Much silk has been found in excavations of Egyptian

[151] See JEA. xxv (1939), 47.
[152] P. Iand., 103 (VI).
[153] P. Cairo 67006.

sites. Some of this undoubtedly was dyed and woven in Egypt, though the cities on the Syrian coast seem to have been the chief factors in that activity. Miss Wilson suggests that a skein of dyed cotton thread found at Karanis may also be of Indian origin.[154]

From the African East Coast or India came the ivory that is found in various excavations as well as mentioned in the papyri. As an example may be mentioned a painted ivory hair comb from Karara.

Of the imports whose place of origin cannot be definitely determined the most important are the metals. All of the gold and silver that was used in the arts or in coinage was brought in from the outside. More valuable in the aggregate perhaps were the supplies of the common metals: iron, tin, lead, copper. The extensive shipping trade on the Mediterranean, the Nile, and the Red Sea implies a local shipbuilding trade and the timbers used in this activity must have in large part been imported.

"Ethiopian" slaves were apparently used in agriculture for John of Nikiou tells a story of a certain rebel in the province of Akhmîn who mustered a large force of Ethiopian slaves and brigands with which he seized the imperial taxes.[155] He was finally crushed by the emperor (Maurice?).

COMMERCIAL IMPORTS

ORIGIN	ARTICLE	APPEARANCE		REFERENCE
Spain				
	tin	Egypt		P. Holm. 152
	olive oil [156]	"	V/VI	P. O. 1924
		"	VII	P. O. 1862
	mercury	"		P. Holm. 156
Gaul				
	copper	"		P. Leid. X. 13
	cadmia	"		" X. 16
	wormwood	Hermopolis		P. Lond. 1259 [157]
	soap	Oxyrhynchus	V/VI	P. O. 1924
Britain				
	tin	Egypt		Vita S. Ioan. 10

[154] Ancient Textiles from Egypt, 50.

[155] It may well be that these "Ethiopians" were war captives taken in fights with the Blemmyes.

[156] Perhaps this was produced at Σπανός in the Oxyrhynchite nome.

[157] Perhaps Gaul was the source of the wormwood, in the special wine mentioned here.

ORIGIN	ARTICLE	APPEARANCE		REFERENCE
Italy				
	Etrurian wax	"		P. Holm. 167
Greece				
	Attic honey	"		Paul of Aegina VII. 20
	Cnidos kermesberry	"		P. Holm. 172
	Cyprian misy	"		" 210
	Cyprian copper	"		P. Leid. X. 9; P. Holm. 147
	stone of Paros	"		P. Leid. X. 9
	Chian earth	"		" X. 5; P. Holm. 147
	shoes	Alexandria		Synesius, Epist. 52
	garments	"		" " "
	Samian earth	Egypt		P. Leid. X. 19
	Thracian cadmus	"		" X. 16
	Rhodian wine [158]	"	VI/VII	P. O. 1851
	Achaean (?) garments	Oxyrhynchus	VI	P. O. 1978
	Megarian salt (?)		V/VI	P. Lond. 1904
	Marble [159]	St. Menas		Bull. fouilles arch. VI. 198
Constantinople				
	race horses	Oxyrhynchus	VI/VII	P. O. 922
Macedon				
	chrysocalla	Egypt		P. Holm. 169
Moesia				
	Tomi opobalsamum	"		" 190
Scythia				
	indicum	"		" 196
Armenia				
	chrysocalla	"		" 199
Asia Minor				
	Cappadocia salt	"		P. Leid. X. 2
	" "	"		P. Holm. 147
	Galatia copper	"		" 150
	Phrygian stone [160]	"		" 206
	" "	"		P. Leid. X. 95
	Cilicia crocus	"		" X. 74

[158] A reference to a Megarian vat in this same document is so doubtful that it is entirely omitted. The wine may be Rhodian type rather than of Rhodian origin.

[159] Said to have been taken from older buildings in Alexandria and reused here.

[160] From Cappadocia. Used by dyers.

ORIGIN	ARTICLE	APPEARANCE		REFERENCE
	Pontus honey	"		P. Holm. 177
	" henna	"		" 190
	Magnesian stone	"		P. Leid. X. 9
	Sinope sinopis	"		" X. 17
	" "	"		P. Holm. 216
	Pontus wax	"		P. Leid. X. 23
	Colophon wine	"	VII	BGU. 377
	" salve	—	552	Kl. Format 279
	Nicaean (?) purple	Arsinoe	363	SB. 8013
	Asia Minor marble	Saqqara	V	Quibell, III. 4
Syria				
	Kermesberry	Egypt		P. Holm. 220
	Ascalon wine	"		Expos. t. mundi 29
	" "	Oxyrhynchus	V/VI	P. O. 1924
	Gaza wine	Egypt		Expos. t. mundi 29
	Gaza pickled fish [161]	Oxyrhynchus	V/VI	P. O. 1924
	Palestine opobalsamum	Egypt		P. Holm. 190
	glass	Karanis		Harden, Roman Glass, Nos. 759, 763
	Damascus camasia	Lycopolis		P. Princ. 55
	Antioch sticharion	Alexandria	IV	P. Fouad 74
	" pen	"	IV	" 74
	" paragauda	Sabbis	VI	P. Cairo 67006
Persia				
	"Nuts" [162]	Egypt		P. Holm. 224
Arabia				
	horses	"		Not. dign. Or. I. 25
	frankincense	Oxyrhynchus	452	P. Rend. Harris 78
	"	—	IV	" " 98
India				
	rock crystal	Egypt		P. Holm. 177
	pepper	Oxyrhynchus	IV	P. O. 1299
	"	"	VII	P. O. 1862
		Egypt	IV	P. Rend. Harris 98; P. Leip. 102
	fruit	Clysma		Antoninus Martyr 41

[161] The word "Gaza" may be the type of jar rather than the source of the fish. Cf. use of "Cnidian jar."

[162] Used in dyeing. Perhaps grown locally.

ORIGIN ARTICLE	APPEARANCE	REFERENCE
rice	Egypt	P. Holm. 187
indicum	"	" 184
China		
silk	Panopolis [163]	Forrer, Seidentextil. aus Achmîn, 10
	Alexandria	Vita S. Ioan. 28
	Karara	Ranke, Koptische Friedhöfe bei Karara, 35
Ethiopia		
hippopotamus tusks	Egypt	Cosmas Indico. 11
Cyrene		
sal ammoniacum	IV	P. Lond. 121; P. Leid. X. 90
Mauretania		
garum	346	P. Lond. 239

FOREIGN SLAVES IN EGYPT

FROM	IN	DATE	REFERENCE
Gaul	Egypt	359	BGU. 316
Pontus	Alexandria	404	Synesius, Epist. 4
Mauretania	Fayum		BGU. 728
" Sarmatian " [164]	Oxyrhynchus	V	PSI. 211
" Gothic "	"	VI	PSI. 953, 956
Ethiopia	Hermopolis	VI	Archiv, III. 415
	Egypt		Palladius, Hist. II. 10
	"	IV	Jerome, Epist. 40. 2
	"	VI	John of Nikiou, 97. 30

IMPORTS

Objects not native to Egypt which were paid as rent by various Egyptian estates to churches in Rome. All the references are to Liber Pontificalis, vol. 1. Duchesne.

oleum nardinum	177, 178, 178b, 179, 179b
balsamum [165]	177, 178b, 179, 179b

[163] " Whole silk " very rare and any silk rare. Used here chiefly as trimming.
[164] The Sarmatians and Goths may be bodyguards or troops.
[165] Probably local.

aromata	177, 179, 179b
aromata cassia	178, 178b
storax Isaurica	177
storax	178, 179
stacte	179
crocus	178, 179b
cariophylum	178
oleum Cyprium	178
pepper	178

IMPORTS

Miscellaneous foreign articles whose point of origin cannot be determined

silver			all was imported
		V/VI	P. O. 1923
iron		316	P. O. 84
tin			Vita. S. Ioan. 10
		572	P. O. 114, 915, 1000-1003
antimony			Theodoret, IV. 19
" foreign cloaks "		IV	P. O. 1684
foreign building stone		IV	P. Lond. 755
aromata			Expos. t. mundi 35
		579	P. O. 2052
henna			P. Holm. 208
barbarian wares			Expos. t. mundi 35
lead		572	P. O. 1001-1003, 915
pine		IV/V	Boak, Karanis, 1924/31, 88
ebony	Sabbis	VI	P. Cairo 67006
ivory	"	VI	" "
	Karara		Ranke, Koptische Friedhöfe, 23
	Armant		Mond & Myers, Temples, 156
pine pitch			SB. 5310
coral	Firka		JEA. XXI. 194
pearl	Heracleopolis	484	PSI. 183
white lead	Hermopolis	IV	SPP. XX. 96
sandyx	"	IV	" " "
castor	—	IV	P. Rend. Harris 98

costus	—	IV	" " " "
nard	—	IV	" " " "
mother of pearl	Menas	V	Kaufmann, die heilige Stadt, 103
amber	"	V	Kaufmann, die heilige Stadt, 103
parchment	Egypt	V/VI	Wilcken, Chrest. 135
cerussa	"	IV	P. Leip. 102
opium seed	"	IV	" "
cassia	"	IV	Alex. Tralles, I. 435, ed. Pushmann
" Babylonian " hides	"	346	P. Lond. 247

4. THE GUILDS

Julius Caesar abolished certain guilds in Rome as a political menace, and in general such organizations seem to be viewed with disfavor until the time of Alexander Severus. In Egypt the guilds served an economic purpose which evidently far outweighed their danger to the state. The artisan guilds were made responsible for filling government requisitions and for the payment of taxes of defaulting members. Little is known of the guild of farmers but there is evidence that it also served the state in similar ways.[1]

The political organization of the Egyptian village constituted a *κοινόν* but whether this was endowed with juristic personality is questionable.[2] In A. D. 332 a petition was addressed to the prefect by three officials of Theadelphia who represent the village *ἀπὸ τοῦ κοινοῦ τῆς κώμης*. They complain that they were responsible for the tax on 500 ar. of imperial estate, cultivated by twenty-five tenants (*ταμιακοῖς ἀνδράσι*) who had fled to other nomes.[3] Similarly in the correspondence of Abinnaeus, an assessment of grain on various villages was made and after contributions from individuals the full amount seems to be made up by a payment *παρὰ τοῦ κοινοῦ τῆς κωμῆς*.[4] This *κοινόν* is evidently made up of the village officials and leading citizens. This responsibility of the community is made clear in the constitution of Constantius issued A. D. 360 where the patrons

[1] Boak, Organization of Guilds, TAPA. lxviii (1937), 212ff.; San Nicoló, Aegyptische Vereinswesen; Economic Survey ii, 392ff.; Norsa, Elezione del *Κεφαλαιωτής* di una corporazione, Annali della scuola di Pisa vi (1937), 1ff.

[2] Taubenschlag, Law of Greco-Roman Egypt, 46f.

[3] P. Thead. 17.

[4] P. Geneva 63-4.

who have given refuge and protection to coloni who have fled from the village (consortium vicanorum) must discharge their obligations which had hitherto fallen on the κοινόν (consortium).[5] The growth of patronage in Egypt had evidently imposed an impossible strain on the village organizations, and it is probably due to their vigorous protests that the imperial authorities took steps to check the evil in Egypt. At any rate, the corporate responsibility of the village for the taxes of defaulting members was clearly defined at that time.

The corporate responsibility of the village may go back to Diocletian or earlier. The abolition of the old classifications of land by Constantine or his immediate successor seems to have transferred the crown, hieratic, and, in some cases, usiac lands to the corporate ownership of the village, rather than to the former tenants. This quasi-communism probably ripened into possession and eventually to ownership. At least those coloni who sought the protection of patrons evidently did not come empty-handed.[6] The right of "possessio" was granted to villagers by the constitution of A. D. 415, and in the sixth century a document from Spania lists over a hundred "possessores" in the village.[7] More definite information is available for the village κοινόν in the sixth century. At Tacona it was represented by the meízon, six others and the "remaining comarchs who constitute the κοινὸν τῶν πρωτοκωμητῶν.[8] These borrow seed from Apion which they agree to repay at harvest time on the security of all their possessions. Here the responsibility for the loan seems to fall not upon a juristic personality but upon the individual officials. At Aphrodito the situation is somewhat different for this village had once been a city but had become a village attached to Antaeopolis. Here the governing body is a κοινότης τῶν πρωτοκωμητῶν, τῶν συντελεστῶν καὶ τῶν κτητόρων. Whether these functioned together or separately is not clear. The κοινὸν τῶν κτητόρων evidently acted alone in the payment of taxes.[9]

The κοινὸν τῶν γεωργῶν which is seldom found in documents of the early Empire reappears again in the accounts of Apion at Oxyrhynchus. There is no evidence of its existence in the villages, but it is found in those small units (ἐποίκια, κτήματα, or δίκαια) where there were more than three or four tenants. Thus the steading of Tillon had nine tenants who held leases of considerable size if we may judge

[5] C. Th. xi. 24, 1.
[6] C. Th. xi. 24, 2.
[7] C. Th. vi. 24, 6; P.O. 2058.
[8] P.O. 133.
[9] P. Cairo 67001, 67325 (folio vii, verso); PRG. iii. 34-35.

from their rentals (or taxes).[10] In addition the κοινόν paid rentals (taxes) for "assigned lands" (ἀποτάκτων χωρίων) and "assigned vineyards" (ἐκτάκτης τρύγης). The κοινόν not only pays for lands but in some cases it pays ὑπὲρ συντελείας κεφαλῆς.[11] Similarly, the κοινὸν τῶν ἀμπελουργῶν pays assessments in money, presumably as tax or rent for vineyards which have been assigned to them.[12] The guild of shepherds is attested for Aphrodito and probably similar guilds were constituted wherever there were sufficient numbers in the community to form an organization.[13]

While we have no information about the constitution of the guilds of farmers, herders, etc., in the sixth century, it is evident that Apion used the guild as an instrument for the payment of obligations of defaulting members or for the cultivation of abandoned leases. Whether the guilds of farmers and vineworkers were constituted by Apion in those communities where he had several leaseholds as a compulsory organization, where the group of tenants assumed mutual liability for cultivating the land or caring for the vineyard, is uncertain. We have noted elsewhere that sureties were required for certain tenants, but these sureties were usually provided by some one from a different community. It is not impossible that in those steadings where Apion had only two or three tenants, these were required to provide sureties for their continuing on their leasehold and discharging their obligations. Where there was a larger number of tenants, he organized them as a κοινόν and required them to stand security for their fellows.

The κοινόν should be distinguished from the formal partnership or κοινωνία which took leases from Apion.[14] This was the ordinary contract of partnership, but this in turn must be distinguished from the κοινωνία of village officials which is found early in the fourth century when the two comarchs or the sitologi formed a sort of κοινωνία or were addressed as κοινωνοί. This was in no sense a partnership but rather a collegiality of office and apparently had no other significance.[15]

The κοινὸν τῶν ὀνομάτων is found in contracts of surety and is used whether one or more sureties is involved.[16] Some light is thrown on the usage in a document where two Aurelii give an undertaking to serve Apion honestly in some capacity.[17] The agreement closes with the formula τὸ κοινὸν τῶν ὀνομάτων στοιχεῖ ἡμῖν ὡς πρόκειται while the

[10] P.O. 2195.
[11] See p. 259.
[12] P.O. 1912, 1911, 2195.
[13] P. Cairo 67001; P. Lond. 1671.
[14] P.O. 2195.
[15] Kase, *Papyrus Roll*; P. Thead. 31-35.
[16] PSI. 52; P.O. 1979.
[17] P.O. 1981.

verso has: ὁμολογία τῶν ἀπὸ κωμῆς Ὤφεως τοῦ Ὀξ. νομοῦ. While this κοινόν might possibly be limited to the principal and the surety, or in the case just cited, to the two principals, it is more probable that the κοινὸν τῶν ὀνομάτων is the village organization.

The artisan guilds had never been suppressed in Egypt where they had been found convenient instruments for requisitions or for taxation. In the early Byzantine period the guilds of Oxyrhynchus were well organized with a president who apparently held office for a month (μηνίαρχος). In A.D. 338 these guilds all reported to the logistes of the nome their stocks on hand.[18]

The guilds seem to be used for government requisitions if we may judge from a strike of linen weavers reported in a private letter of the fifth century. Possibly the disturbance by the bastagarii reported in another letter may be due to similar causes.[19] The guild organization was also used to collect the tax on trades, and a document dated A.D. 426 or 441 shows that the members paid to the guild treasurer (τραπεζίτης) a monthly quota of two hundred myriads denarii.[20]

In the sixth century the guilds were organized with a head (κεφαλαιωτής) as at Aphrodito and here the guilds with the church officials took a leading part in protesting the exactions of the pagarch of Antaeopolis.[21] The guilds of shepherds here not only performed the service of field guards but also paid reasonably heavy assessments in taxes.[22] Although the trades' tax is said to have been abolished by Anastasius, either his legislation did not affect the guilds of Egypt or the tax was revived. Some artisans paid through their epistates who was apparently the chief officer of the guild in some districts.[23] At Panopolis the taxes collected from the guilds were greater than those paid by the landed proprietors.[24] At Aphrodito the guilds also contributed though not in great amounts.[25] Not all taxes were paid

[18] P.O. 53, 85; PSI. 202; P. Rend. Harris 73.

[19] P. Oslo 88; SPP. xx. 82.

[20] See note 1; SB. 7668 is evidently similar, cf. P.O. 1331.

[21] P. Cairo 67283. The epistates was probably a guild official in some districts.

[22] P. Cairo 67001; P. Lond. 1671; P. Flor. 297. For the guild of hunters at Aphrodito see SB. 6704 (A.D. 538).

[23] See Miscellaneous Taxes *s. v.* χρυσάργυρον.

[24] P. Hamb. 56. The guilds were apparently assessed for the horse races (P. Lond. 1028).

[25] P. Flor. 297. The guild of hunters (SB. 6704) who belonged to the noble house at Aphrodito and who evidently served the estate of a landed proprietor (γεοῦχος, Dioscurus?) rather than the village, may have had a monopoly of hunting and fishing. The latter may be inferred from the guild laws in regard to sales of boats and picking up floating lumber. Whether this was a state, municipal, or village monopoly is uncertain. The quarrel of two villages over fishing rights in the fifth century is typical of local jealousies in preserving privileges (Wilcken, Chrest. 23). The guild at Aphrodito elect their own head men (κεφαλαιωταί) and frame regulations regarding local matters, especially contributions to the guild treasury for marriages, lucky finds, and other occasions.

through the guild organizations for we find lists of contributions where single artisans are listed among the number.[26]

Constantine or Constantius granted to certain groups of artisans immunity from liturgies. This constitution was retained by Justinian although certain changes were made.[27] Whether this law applied in Egypt is uncertain. At least the *corporati* of Alexandria were released from the liturgy of cleaning aqueducts in A. D. 436.[28] A similar liturgy seems to be imposed at Panopolis many years later.[29] The workmen in the government shops at Alexandria were presumably organized as guilds. Arcadius and Honorius instructed the Augustalis to appoint the archigerontes and dioecetae. Justinian retained this law but added that these officials must be Christians.[30]

The pious foundations had a juristic personality and the monks at Tzmin issued leases through the head of the order.[31]

5. TRANSPORTATION

In the Roman period the control of transport on the Nile was vested in the prefect. Transport from Alexandria to Rome was presumably an imperial concern under the supervision of the prefect of the annona. Shipments down the Nile usually took advantage of the flood season, and were probably completed by the time the flood had subsided. The corn fleet for Italy usually left Alexandria early in the following May and set sail from Ostia for Egypt about the middle of July when the Etesian winds set in. The fleet apparently wintered in Alexandria. In the transport of the grain supply, the fleets suffered from the economic disadvantage of one-way cargoes both on the Nile and on the Mediterranean. The tribute cost Rome nothing beyond the cost of transport and so Egypt received nothing in return.[1]

The reorganization of Diocletian created separate provinces in Egypt, but the Alexandrian prefect apparently maintained some control over the tribute to be collected from the other provinces. A praefectus annonae Alexandriae is mentioned in A.D. 349. On the analogy of the praefectus annonae Africae, it might be thought that these prefects were in charge of the grain supply for the imperial cities, but while this is true for Africa, it cannot be certain that the

[26] P. Cairo 67288.
[27] C. Th. xiii. 4, 2; C.J. X. 66, 1.
[28] C.J. xi. 29. 1 (A. D. 436).
[29] P. Hamb. 56.
[30] C. Th. xiv. 27, 1; C.J. i. 4, 5.
[31] P. Cairo 67170-1; P. Lond. 1690.
[1] Economic Survey ii. 400.

prefect of the annona of Alexandria was anything else than in charge of the provisioning of that city.[2] When Egypt was created as a separate diocese about A. D. 380, it was placed under the control of the praefectus, who was now called Augustalis and he was given general oversight of the tribute from the whole diocese.[3] This arrangement was kept until the time of Justinian. While the latter made some rearrangements, the general oversight of the annona remained with the Augustalis who was instructed to have the grain brought down the Nile to Alexandria and shipped to Constantinople before the end of August. No grain could be shipped for private use until the tribute for Constantinople was taken care of. A penalty of a solidus for every three artabas was imposed on the Augustalis for failure in his duty. Since the total tribute was fixed at eight million artabae, the penalty might be severe. The sailing conditions in the Mediterranean were favorable in August and September, and Procopius says that two or even three round trips could be made before winter set in. The most difficult part of the voyage was from the Dardanelles to the Bosporus. Unless the cargo vessels had a southern wind on entering the straits, both wind and current were against them, and the ships were held at Tenedos until favorable weather conditions prevailed. For this reason Justinian built a granary on Tenedos large enough for the whole fleet to unload. Thus the Alexandrian fleet, if delayed by adverse winds, discharged their cargo at Tenedos and returned to Alexandria while another fleet was assigned the task of transportation from Tenedos to Constantinople. According to the Black Sea Pilot, southwest and southeast winds are rare from March to September, while north and northeast winds prevail nine months of the year, presumably from December to September. In the autumn after entering the Straits with fresh southerly winds, the sailor is almost certain to find S. E. winds in the Sea of Marmora.[4]

So much for the general outline. The papyri furnish some details about the shipment of grain from the threshing floors to the river bank and the Nile transportation. The Codes give further information about the naviculariі and transport on the Mediterranean.

The transportation of the wheat from the field to the threshing floor fell on the farmer. The transport of sheaves (dragmategia)

[2] C. Th. xii. 6. 3. Presumably the same official is mentioned in P. Flor. 75 (Chr. 433, A. D. 380). Wilcken believes that this was a shipment for Constantinople. However there is no reason why it might not also be for the annona of Alexandria.

[3] C. Th. i. 14. 1 (A. D. 386); C.J. i. 37. 1 (A. D. 386); C.J. xi. 2. 4 (409).

[4] Edict xiii; Procopius, Buildings v. 1. 7-16; Black Sea Pilot, 35ff.

which was sometimes paid by the state and exacted from the farmer in the second century does not appear in the Byzantine period.

The transportation costs from the threshing floor to the shipping point, whether to canal barge, or river boat, also fell on the farmer. Villages in the north of the Fayum such as Caranis and Theadelphia transported their grain overland to the Nile at Cerce or Leucogeum. In some years donkeys were requisitioned from distant nomes to supplement the local supply of public and privately owned animals.[5] There is no clear evidence of the liturgy requiring the provision of three donkeys for transport but the oversight of the transport was a liturgy.[6] Thus in A. D. 306 Aurelius Petrous agreed to take over the liturgy of Euroras for a period of two months while the latter was absent in Alexandria.[7] The purchase of public transport animals at Theadelphia was evidently assessed upon the villagers.[8] A private estate in Upper Egypt employed a number of camel drivers and wagoners but whether these were for transport of grain is unknown.[9] Public oxen are once mentioned and presumably they were for transport.[10] References to local transport disappear after the early part of the fourth century. In the sixth century the public post may have had some responsibility in this matter.[11] The only mention of transport seems to come from the Oxyrhynchite nome where a tax was collected for transportation by camel (*ὑπὲρ μεταφορᾶς καμήλων*).[12]

Transportation on the Nile required a strongly centralized organization to assemble the requisite number of boats at given points in order to bring down as much as possible during the flood season. When Justinian required the delivery of eight million artabas before the end of August, it probably required the assembly of several thousand craft for this purpose, and probably not more than a single cargo could be transported at that season.[13] The ship owners were organized in a guild whose members were surety for each other.[14]

[5] O. Mich. 332-516; 878-931; P. Oslo 135; P. Rend. Harr. 93.

[6] See Liturgies.

[7] BGU. 286.

[8] Kase, Papyrus Roll. *εἰς λόγον τιμὴν* (sic) *κτηνῶν δημοσίων*. The same document has payments *εἰς λόγον ἀποτρίπτων κτηνῶν δημοσίων*, apparently assessments to replace worn out stock.

[9] P. Leipz. 97.

[10] P. Lond. 1654.

[11] Private estates maintained express post and freight transport (*ὀξέως καὶ βαδιστικοῦ*) cf. P.O. 138.

[12] P.O. 2032. A charge for transporting to a monastery in P.O. 1911. Cf. P.O. 126, 2108, 2122.

[13] P.O. 1048 gives a series of 11 cargoes ranging from 32 to 4417 artabas. See Pauly-Wissowa, RE s. v. *navis* for sizes of cargo.

[14] Wilcken, Chr. 434.

In addition to private ownership there were public and treasury ships (*ταμιακόν*), and boats belonging to the church.[15] Pleasure boats (lusoria) were also pressed into service on occasion.[16] In the sixth century some estates seem to have owned their own fleet of transports and the ship captain was an important member of the staff. He distributed seed on loan, collected arrears and sold them.[17]

The public boat seems to be employed for transportation of officials. For this oarsmen were provided as a liturgy by the various tribes of Oxyrhynchus.[18] At Hermopolis certain families seem to have had the duty of providing an oarsman or paying for a substitute.[19] In one case an oarsman protested because he was forbidden to serve.[20] It may have been such a craft which was hired from the estate of Hermogenes at Oxyrhynchus and the overseer of the canonica paid 48 solidi as rental for two years.[21]

The cost of transportation on the Nile was paid by the farmers, but whether this was in money or in kind is uncertain. On the estate of Harpocration, the sitologi acknowledge the receipt of a denarius per modius on wheat payments and this may have been a sort of gratuity to the captain. But with the rapid depreciation of the denarius this gratuity lost all significance and it disappears after A. D. 343.[22] In two documents of the fourth century the captain acknowledges receipt of a cargo with naulage (*ναῦλον*), cumula (*κούμουλα*) and porterage (*σακκοφόριον*).[23] The cost of porterage in A. D. 343 was apparently 200 denarii (per artaba?) and is presumably the cost of unloading at Chaereas and transferring the cargo to lighters for transport to the docks at Alexandria. The freight rate is not given.

[15] Preisigke Wörterbuch, s. v. *πλοῖα*.

[16] P.O. 1048. The liburnica were dispatch boats, but taxes were collected for their support, P.O. 2032. Cf. Kl. Form. 990.

[17] P.O. 149. The overseer of taxes hired a boat from the estate of Hermogenes for two years. P.O. 133 (A. D. 550) where Menas is described as captain of Apion's estate and made a loan of corn to the village of Tacona. Possibly the same Menas in P.O. 2023 who collected arrears.

[18] P.O. 86 (A. D. 338).

[19] P. Grenf. 81, 81a (A. D. 403).

[20] PSI. 298 (IV).

[21] P.O. 149 (A. D. 572).

[22] Kase, Papyrus Roll x (A. D. 318-9); xi-xii (A. D. 321); P. Goodspeed 14 (A. D. 343). The same charge is found in the fragmentary portion of the Edict dealing with transportation published by Miss Graser (TAPA. lxxi (1940), p. 165 line 23). The text as preserved reads . . . a qua discindentis per singulos (modios) (denarium) unum. Apparently about 18 letters have been lost at the beginning of the line. While the restoration and construction are both uncertain, it seems clear that a charge of a denarius per modius was exacted on grain traffic down stream. It is doubtful, however, that this can be a freight rate from all points on the Nile to Alexandria.

[23] P. Goodspeed 14 (A. D. 343); P. Flor. 75 (A. D. 380), both from Hermopolis.

The κούμουλα are otherwise unknown but may be some form of sportula.

In the sixth century freight rates from Oxyrhynchus to Alexandria seem to vary between 16-18 c. per 100 artabas. In A. D. 534 Asclas acknowledged the receipt of a cargo 1485¼ artabas and 11 s. 3½ c. for freight, or approximately 18 c. per 100 artabas.[24] In the accounts of an estate, dated ca. A. D. 555, 800 artabas were delivered to the pilot Cyriacus and 5⅓ solidi in Alexandrian standard (or 5 s. 18¾ c. private standard). This implies a rate of 16 c. per 100 artabas.[25] Another document dated in the late sixth century gives the freight on 2025¼ artabas as 16⅓ s. private standard (equals 15 s. 2½ c. Alexandrian standard) or approximately 18 c. per 100 art.[26] In A. D. 576 the grain shipped was 3585¼ art. 9 choenices and the freight paid was 26 s. 21½ s. Alexandrian standard or almost exactly the same rate.[27] In P.O. 1908 several payments of arrears of wheat are recorded as well as payments for transport. Apparently there is no relation between these payments except in line 15 the transport of 120 artabas from Sephtha is given as 20 c. or approximately 16⅔ c. per 100 artabas. In P.O. 2022, lines 6-7, a rate of 32¾ c. per 100 artabas seems to be exacted. Possibly this rate includes the transport from Alexandria to Constantinople.[28]

On the estate of Theodora at Hermopolis the cost of freight was not exacted for the *dorea*, but on 104½ artabas collected from the πρόσοδος, there was paid annually 25¼ c. for transport.[29]

From Antaeopolis 61,674 artabae were shipped for the embole.[30] For ναῦλον, ἐμπετικόν and ἀναλώματα the amount booked (III. 14) was 862½ s. Under the canonica was entered as supplementary freight cost (ὑπὲρ συμπληρώσεως φορέτρου) 126 s. 8 c. with a supplement of 5 s. 6 c. for obruza. It seems impossible to determine how much was allowed for the freight from Antaeopolis to Alexandria. According to Edict XIII, the freight of this quantity from Alexandria to Constantinople should be 616¾ s.

At Cynopolis Christodora paid 9,930 artabas for the canonica of

[24] P.O. 142 (A. D. 534).
[25] P.O. 1913 (ca. A. D. 535).
[26] P.O. 1912, line 120.
[27] P.O. 2195, line 130-1.
[28] In this document the supplementary tax of 5% in wheat is added and freight is charged for the embole and 5%. The other supplementary charges were evidently collected and retained at the point of shipping.
[29] P. Baden 95.
[30] P. Cairo 67057 (this amount may be only for shipments of the military supplies). It is surprising that the contemporary accounts of Aphrodito make no reference to payments for transport of the embole.

the first year of the indiction and 20,248 as an advance (*ὑπὲρ προτελείας*) for the second year. The charge for transport, if the reading *ναύλου* is correct, was 90 artabas on which a supercharge of 20% was added. This is the only case of the payment of the charge in kind and the percentage is ridiculously low when compared with other accounts of the sixth century.[31]

The shipment of grain from Alexandria to its destination was probably a matter of private enterprise. In his edict of prices Diocletian fixed the cost of transporting grain from Alexandria to Rome at 16 denarii per modius and to Byzantium at 12 denarii.[32] This was respectively 16% and 12% of the price of the wheat. Constantine began the distribution of free bread at Constantinople in A. D. 332, and in transferring the tribute of Egypt to Constantinople he apparently allowed the shipowner four per cent in kind with a *sportula* of one solidus per thousand (modii or artabae?).[33] This rate was established by a constitution of A. D. 334 and was undoubtedly in effect when the Theodosian Code was issued. The rate was evidently not too favorable; and the number of constitutions issued during the fourth and early fifth century dealing with the navicularii reveal imperial legislation at its worst.[34] In Edict XIII Justinian set aside 80,000 solidi for the transport of 8 million (artabae), and if we assume an average price of 10 artabas per solidus the freight rates were fixed at 10% of the value of the cargo, or more than double that allowed by Constantine and nearly approximating that of Diocletian. Justinian ordered that this money be paid over to the ship owner "as has hitherto been the custom" (*κατὰ τὸ μέχρι νῦν εἰθισμένον*). Evidently some change had been made in the rate fixed by Constantine some time before, but when or how is unknown. The number of constitutions in the Justinian Code dealing with the navicularii is much decreased and evidently their economic position had been improved long before the enactment of the Code.

The first evidence that the Egyptian was taxed to pay the freight on Mediterranean vessels comes in A. D. 316. Arable land was taxed at 50 drachmae per aroura, pasture land 100 Attic drachmae, and

[31] P.O. 2026. The reading in Kl. Form. 556; *σὺν εἰκ( ) ναυλ( )* should probably be *σὺν εἰ(κοσταῖς κ(αὶ) ναύλ(οις)*. In P.O. 2021 the account of the village of Tacona given 7004 artabas for the osprigites, followed by another payment of 1701¾ art. to the same official *εἰς πλοῖον*. Whether this is a charge for freight is uncertain. The reading is not certain, and bears no relation to the 7004 artabas.

[32] TAPA. lxxi (1940), 157ff.

[33] C. Th. xiii. 5. 7 (A. D. 334).

[34] C. Th. xiii. 5-7 a total of 54 constitutions in a hundred years,—only exceeded by those dealing with the curiales.

olive trees paid 2 Attic drachmae each.[35] The accounts of Harpocration show that he paid a tax in that year for sea-going vessels but there is no record of his paying it later.[36] The tax may have been suspended in the struggle between Licinius and Constantine. The next mention of the tax is ca. A. D. 339 when 389 T. were collected at Hermopolis for *ναῦλον*.[37] A number of ostraca from Caranis dated in the first half of the fourth century record payments of grain without transport (*χωρὶς ναυλεπλοίου*) but whether this is for Nile or Mediterranean transport is uncertain.[38] Presumably the tax was here paid in kind and is probably for local transport. In A. D. 369 the governor of the Thebaid ordered the exactor of the Oasis to collect the freightage for sea-going vessels according to the delegation of the previous year.[39] This implies that the assessment varied from year to year and was no longer a fixed tax on land. The total assessment for three villages was about 60 T. According to the gold value of the talent at this period the total assessment probably amounted to about a fiftieth of a carat (see also under Taxes p. 254).

Documents in the Michigan collection (kindly communicated by Professors Boak and Pearl) give some light on transportation costs. The charge for naulage on wheat (P. Mich. inv. 6212b) is given as 10% of the cargo while another (P. Mich. inv. 4607) gives the collection for arrears (*μετέκθεσις*) at 35,000 denarii per artaba, apparently for transport from Ptolemais Hormou to Alexandria in the late fourth century. Some unknown commodity reckoned in pounds (P. Mich. inv. 4650a) has a charge for naulage at approximately a twelfth of the cargo but there is no indication of the port of shipment or destination. A document from Caranis (Cairo, Journal d'entrée, no. 57394) dated A. D. 309 is a receipt given by the apodectes of barley to the sitologi acknowledging the receipt of barley with the tenth as ordered by the canon, and for each artaba five and a half denarii for naulage and also a fee of a denarius per modius.

An account of a small estate in the fourth century gives some slight information about freight costs. The tax was 3 artabas of wheat and $1\frac{2}{3}$ artaba of barley with an extra charge (*ἐ[πιβολή]*) of $1\frac{1}{3}$ artaba of wheat. The river freight on wheat and barley was 3,000 drachmae per artaba. The account of sea-going freight is combined

[35] P.O. 2113 (A.D. 315). The Attic drachma is presumably the denarius or four Egyptian drachmae.

[36] Kase, Papyrus Roll; O. Strass. 172.

[37] P. Cairo Pr. 33; cf. SPP. xx. 93.

[38] O. Mich. 399-417. See also Kl. Form. 48-9, 77 (VI) from Hermopolis.

[39] P. Leipz. 64 (Chr. 281). For values of the denarius in gold, see Currency in Roman Egypt, 157ff.

with other taxes whose rate is unfortunately not determinable but the total is $3\frac{1}{2}$ T.[40]

A document of unknown origin and date gives the price of wheat at 40 myriads of denarii per artaba and a freight rate of 12 myriads or $33\frac{1}{3}\%$ of the cost. This may be a private sale and if so it is important in showing that private transport was much more costly than the annona.[41]

The gratuities to captains were of various kinds—*εὐμένεια, διάπεισμα, ἰμπετικόν, ἐνδοματικά, συνήθειαι,* or *φιλικόν.* The latter was apparently limited to Mediterranean traffic. In addition there were certain percentages exacted in collections of grain and these evidently were not considered part of the annona. There is no definite evidence that they went to the captains of the boats. However it may be noted that the ships engaged in collecting grain for the monastery of Metanoea gave receipts for the 1% and 5% supplements as well as for freight.[42]

An assessment at Oxyrhynchus for *ναῦλον Θαλαττίωνος* is a solidus for 243 ar. and *ναῦλον Κλήμεντος* is 7500 denarii per aroura.[43] The editor suggests that the first is best taken as a proper name but does not overlook the possibility that it may be an error for *θαλαττίων (πλοίων)* or for freight on sea-going vessels. Otherwise it is probably to be taken as an assessment for the expenses of some official, since the whole brevium seems to be primarily for military needs.

The transportation of military supplies at Syene seems to be in the hands of the *διαδότης.* There was evidently a scramble to secure the necessary transportation.[44] The *ναῦλον* for military tunics is once mentioned in the fourth century but without any indication of the method of assessment.[45]

An assessment was made at Oxyrhynchus for transport of hemp *(ναῦλον στιππίου).*[46] At Aphrodito Dioscurus paid a tax *ὑπὲρ ναύλου λιτ( )*,[47] but the restoration of *λιτ( )* is unknown. His payment for the fare of *διακονηταί* is not recorded elsewhere but is evidently a tax since the receipt was signed by the adjutant of the pagarch.[48]

[40] SPP. xx. 93 (A. D. 334 or 349 or 364). The value of the drachma may be estimated from the price of pork given as 4000 dr. per lb.

[41] P.O. 1886. An account in P. Rend. Harris 94 indicates that the captains of seven vessels received a sum of gold varying from $93\frac{1}{4}$–$93\frac{3}{4}$ solidi each but there is no indication of the purpose.

[42] See p. 242.

[43] P.O. 1905 (IV/V).

[44] P. Giess. 54.

[45] PRG. v. 61.

[46] SB. 7756. This may be for military transport. Cf. *στυπτηρίας* in P.O. 1905.

[47] P. Cairo 67325.

[48] *ibid.*

Aphrodito evidently received the revenue from its marginal land, and a small charge for transport of this grain (*ναῦλον τῶν ἀπόρων*) was entered in the village accounts.[49]

The combination *ναύλου καὶ γόμου* (P. Lond. 1759) is found but once, and Bell gives the reading as doubtful. Grain was once provided for a dispatch boat at Oxyrhynchus (200 artabas of clear wheat) and 4,000 myriads of denarii were paid by the agent of the estate for transport.[50]

In two of the delegationes issued to Aphrodito in the sixth century, the village was instructed to provide a proedros, an epimeletes, and sailors for the boats. The officials presumably act as a sort of supercargo to see that the shipment is properly guarded en route and delivered to the proper authorities at Alexandria.[51] There is no mention of the forwarding of samples from the tax-collectors to the officials at Alexandria to compare with the cargo as received, but a small tax for messengers is once found and in other documents a charge for miscellaneous expenses does not seem to be further defined but may cover such costs.[52]

6. PUBLIC AND PRIVATE POSTING SERVICE

The cursus publicus of the Byzantine period is known chiefly from the constitutions regulating its use in the Codes.[1] To what extent these applied to Egypt is unknown. The Nile had always been the chief highway and probably was the only one available during the flood season. There had been a royal road which is sometimes mentioned in sales or leases as a boundary but little is known of it. Presumably it followed the banks of the important canals as far as possible. The Tabula Peutingeriana and the Antonine Itinerary indicate various stations in the Delta and Nile Valley which probably represent military camps or posting stations along the road.[2] The papyri mention Tacona as a headquarters of stables which also appear in the Antonine Itinerary.[3]

The cursus velox (*ὀξὺς δρόμος*) is mentioned first at Oxyrhynchus

[49] P. Cairo 67058. Wilcken (Grundzüge, 376) refers to a Leiden ostracon which mentions *ναῦλον τιρώνων καὶ βουρδώνων πριμιπίλου* (IV).

[50] P.O. 1902.

[51] P. Flor. 293; P. Cairo 67280. See note 15 on Extra Charges.

[52] P. Iand. 63. See Wilcken, Chr. 432.

[1] Seeck, Pauly-Wissowa RE. *s. v.* Cursus Publicus.; Wilcken, *Grundzüge*, 372.

[2] Ball, Egypt in the Classical Geographers, 138.

[3] P.O. 1903 *σταβλίταις Τακόνα.*

in A. D. 322.[4] Aurelius Dioscurus, who had served as praepositus patrimonialium in the previous year, was named as *conductor* for the following year. Apparently three men were required to serve under him in providing donkeys. Money for their expenses was provided by the municipality or nome. Whether or not their accounts had been met is uncertain, but for some reason they were unwilling to serve and Dioscurus appealed to the logistes who seemingly had the power to compel their service. The document is obscure, but it is evident that the conductoria was a liturgy rather than a contractual obligation. The logistes was in charge of the treasury and presumably ordered the necessary payments which may have been delayed in this case. The dispatch bearer (ἀλιαδίτης) was a liturgy attached to the cursus velox. At the end of the fourth century nominations to this liturgy were made by the συστάτης of the tribe or district which apparently took over the function in some sort of rotation annually (τῆς μελλούσης λιτουργεῖν φυλῆς).[5]

In the sixth century private estates maintained their own stables but whether this was done solely for their own private interests is uncertain. The first indication of this is probably to be found in A. D. 470 where the steward (προνοητής) was instructed to deliver 56 artabas of wheat to the donkey drivers of the express post. Bell believes that this is the state postal service, but the heading of the document and the payment to donkey drivers rather than to the posting station itself probably implies a private stable.[6] In A. D. 550 Aurelius Serenus who describes himself as stableman of the express post (σταβλίτης τοῦ ὀξέως δρόμου) of Oxyrhynchus contracts with Flavius Serenus, count and landed proprietor, to serve for a year as stableman (σταβλίτης) in charge of his express service on condition that he receives for himself and grooms as food allowance 80 artabas of wheat, and for barley and lachanus 9 solidi, for green fodder a half a solidus, and 80 cnidia of wine.[7] The allowance for fodder is small and apparently Serenus kept a small stable. In some of the accounts of the sixth century the wages of grooms were paid by the estate. One such document may come from the estate of

[4] P.O. 900 (Chr. 437).

[5] P. Flor. 39 (Chr. 405). Wilcken sees the form ἁλιαδίτης in Kl. Form. 1125-6 but if so, these were employed privately.

[6] P. Lond. 1798. The heading κυρία λαμπ( ) is curious but may indicate that a woman owns the estate. If this is for the public post, it would indicate that its maintenance was no longer by liturgy but by public taxation.

[7] P.O. 140. The σταβλίτης is common (Preisigke, W. B. *s. v.* The ἀρχισταβλίτης is found in P. Princeton 145. The donkey was allowed 30 artabas of barley a year (Econ. Survey II, 407). The capita of the Byzantine period was less (see under Military Annonae, p. 218).

Apion.[8] Two-thirds of the wages of the grooms were paid in this account while a third was contributed by Julian, steward of Actuarion (apparently a village). If Julian belonged to the estate of Apion the costs were apparently divided up between two different districts, but it is probable that Julian was on some one else's estate and the costs were borne by the two owners in the proportion of two to one. The stable was evidently not large since the payments by Apion amounted to 16 solidi 42½ c. and 270 artabas of wheat.[9] The pactarii of the express post are mentioned in accounts of the sixth century and it is probable that private estates preferred to lease the animals required for transport rather than to maintain their own stables.[10] At any rate in A. D. 610 John, who calls himself the pactarius of the express and transport service (*τοῦ ὀξέως δρόμου καὶ τοῦ βαδιστικοῦ*) of the house of Apion, renewed his contract to provide for the transport service for a year at a price of 72 solidi. For this sum he will provide mounts for the managers (*διοικηταί*), secretaries, and messenger boys, and furnish horses (*ἄλογα*) for all farm requirements.[11]

Little information is furnished about the public post in the sixth century. The station at Tacona is mentioned in the Antonine Itinerary as 80 Roman miles from Memphis and 24 from Oxyrhynchus. The *σταβλῖται* at this station received 6592 artabas of wheat from the estate controlled by the catholicus Menas in one year.[12] The treasurer (*τραπεζίτης*), presumably attached to the station, received contributions in money from several neighboring villages and from Cynopolis and even from Oxyrhynchus which had a station of its own. Cynopolis also paid 29¼ s. as commutation for a requisition of wine.[13] The accounts of Aphrodito give no indication of payments for the public post but the register of Antaeopolis has

[8] P.O. 1913. The patrician Sophia maintained a stable in the Fayum (Kl. Form. 1095-6). For a pony and messenger going to Alexandria for a fifteen-day trip the allowance for expenses was 18¾ c. For a stable attached to a monastery see P.O. 146, A. D. 553.

[9] In P. Princeton 145, George, the head stableman, received 4 solidi as advance on his annual wage. The annual wage of the pronoetes was 24 artabas of wheat and 2 solidi less 5 c. Evidently the express post of Apion was a small establishment.

[10] P.O. 2024, 2032. In the former Anoup and John, called nomocarii and pactarii, receive a largess of 60 artabas of wheat (apparently shared with Andronicus, sailor).

[11] P.O. 138. *ἄλογος* is the modern Greek word for horse, but in the seventh century it could include donkeys as well (PRG. III. 50).

[12] P.O. 1906 (VI/VII). On the basis of the annonae of the army (see p. 218) this amount should support about 480 men.

[13] P.O. 2028 (VI: 2040 (VI/VII). In the latter the payments are not necessarily for the stables although there is no other obvious reason why Oxyrhynchus should contribute to Tacona.

an entry of 207 s. for transport animals (*ζώοις δρόμου*) and 28 s. to pay for donkey drivers for the same.[14]

A document from Oxyrhynchus is less easy to interpret. Aurelius Victor, who styles himself as tabularius of the express post, gave a receipt to the overseer of the public treasury of Oxyrhynchus for four solidi (each) less five carats as *μισθὸς δύο ἐργασιῶν* (dyeing and carpet weaving) and apparently an advance payment of 20 carats (?) as tabularius of the express post for the remainder of the fiscal year.[15] Probably the tabularius was a secretary employed at the posting station whose wages were paid by the pagarchy.

The exchange post (*ἀλλαγή*) is more familiar from the Arab documents at Aphrodito [16] but a station was maintained at Pinarchthis in the Byzantine period.[17] Apparently this was a part of the public postal system, for Heracleopolis furnished maintenance for four months of the year; and other supplies for two months came through the scholasticus, Marinus, who may have been an official of the pagarchy of Oxyrhynchus or possibly Cynopolis. This station was managed by an official called the *σελλαριώτης*. The size of the station may be judged from the requirements for fodder, 52 artabas for two months. A similar station at Panticum in the Fayum required 42 artabas of barley to maintain seven horses and two donkeys for two months.[18]

The letter carrier of the sixth century was often the groom (*σταβλίτης*), camel driver (*καμηλίτης*), or donkey driver (*ὀνηλάτης*).[19] However, the official letter carriers were usually called *σύμμαχοι*.[20] When employed in the army they received the annonae of the regular soldier.[21] They were employed by estates.[22] A number of receipts given to secretaries of various villages seem to indicate that their salaries fell on the villages perhaps in some system of rotation.[23]

[14] P. Cairo 67057.

[15] P. Goth. 9, A. D. 564. The epimeletes, Cyrus, is also found in P.O. 125. The *δημόσιον λογιστήριον* is probably not municipal but the treasury of the pagarchy. Frisk regards tabularius as the equivalent of tabellarius and translates as courier, and the *μισθὸς δύο ἐργασιῶν* as wages of dyer and carpet weaver. Probably it is better to take this as the rental of two shops.

[16] P. Lond. iv. *s. v.*

[17] P.O. 1862-3 (VII).

[18] PRG. III. 50 (A. D. 613 or 628). For the capita allowed in the army see Military Annonae.

[19] See P. Goth. 9 where Frisk cites a number of references.

[20] Breviarium Liberati Diaconi c. 23: per portitores literarum velocissimos pedestres quos Aegyptii symmachos vocant.

[21] P.O. 1920. See Military Annonae p. 218.

[22] P.O. 2045. Here the *σ. σπαθάριοι* received a triens a month. Evidently these were armed and may have acted as guards.

[23] SPP. xx. 119; Kl. Form. 1, 14, 21, 90-92. A number of other fragmentary receipts

Since the Nile was the easiest and quickest route, especially down stream, the use of dispatch boats in public and private service is to be expected. A many-oared craft (πλοῖον πολυκωπικόν) was leased for two years by the overseer of the canonica at Oxyrhynchus from a private estate at a rental of 24 solidi per year.[24] Aphrodito contributed a small sum to its support.[25] The liburnica probably served in a similar capacity.[26]

7. LOANS AND MORTGAGES

In the Byzantine period the definite mortgage of land is not found though loans were made with what was called a hypothecary agreement and a general pledge of all one's properly (κινδύνῳ πάντων τῶν ἐμοὶ ὑπαρχόντων) as security.[1] Sometimes real and personal property (κινητὰ καὶ ἀκίνητα i. e., movables and immovables) were pledged and there are occasional pledges of house property.[2] The chattels are also specified in detail in rare instances.[3]

The seizure of persons for debt was permitted. In one case where the creditor seized wife and property the debtor sought the return of the property, but appeared quite willing to allow the retention of his wife until the debt was paid.[4] Although the private prison was illegal in other parts of the empire, it seems to have been allowed in Egypt and the private prison of Apion once held a number of prisoners who were probably held as security for debt. The contracts of παραμονή were probably in some cases the voluntary surrender of the person for debt.[5] The biographer of John the Almoner relates how a tax collector sold himself as a slave.[6]

The rate of interest on loans of money was fixed by Augustus at 12%. This continued to be the legal rate in Egypt until the sixth

published by Wesselly probably belong in this group. cf. *ibid.* 3-8, 10, etc. Whether these belonged to the public post or were attached to the villages which paid their salary is uncertain.

[24] P.O. 149 (A. D. 572).

[25] P. Cairo 67058, 67287.

[26] P.O. 1902, 2032, 2042. The cost of a trip from Oxyrhynchus to Alexandria and back in A.D. 612 was 3 solidi less 12 c. (P.O. 151).

[1] Taubenschlag (Law of Greco-Roman Egypt, 258ff.) discusses the loan and gives a good bibliography. For hypothecary agreement cf. P. Cairo 67306; SB. 4772, etc.

[2] CPR. Inv. No. 2016 (p. 59); P.O. 1876-7. P. Lond. 1723. See antichretic loans, note 32.

[3] P. Lond. 1007, 1716, 1737; P. Cairo 67167.

[4] PSI. 824; P. Lond. 1915.

[5] P. 135.

[6] P. 132.

century.[7] In 528 Justinian provided that loans to illustres should bear the rate of 4%, to industrialists and merchants the rate was 8%, and for overseas transactions and loans in kind the rate could not exceed 12%.[8] In the Novel issued in A. D. 535, the rate of 8% seems to have been made general.[9] How far these regulations applied in Egypt is uncertain. The rate of 12% was specified in a contract of A. D. 531, when it was described as still legal (*νομίμην*).[10] The rate of 8% was exacted on a loan of 20 s. made in Constantinople by the royal or imperial bank to two citizens of Aphrodito to be repaid in eight months at the *ἀποθηκή* at Alexandria at the legal rate of 8%.[11] A few loans of a later date seem to disregard the Justinian rate. Thus a loan in A. D. 597 of 1 s. less 6 c. calls for interest of ¼ c. per month or 16⅔%.[12] A loan of 4 s. made at Syene in 611 specifies the payment of a triens yearly. This is probably, as Bell suggests, the interest on the loan which could be called in whenever the creditor wished.[13] The rate of interest is 8⅓%. Another contract of A. D. 613 was a loan of 3⅓ s. with interest at 12½% or a quarter of a carat per month.[14]

In the early Byzantine period loans were made in the so-called silver currency which underwent rapid and violent inflation.[15] This had the effect of virtually wiping out the debt. It is somewhat surprising that these loans continue throughout the fourth century. The creditors were doubtless aware of the effects of depreciation but there is no evidence of any protection. Curiously enough the contracts rarely make any mention of interest.

The first record of gold in a loan seems to be in A. D. 342.[16] There is no mention of interest, but in the next appearance of gold in A. D. 366 the contract calls for payment of a third of a gram monthly on a loan of 2 s. or a rate of 50%.[17]

The *depositum* of depreciating currency seems to have been the

[7] Economic Survey ii, 450. The legal 1% per month is found in P.O. 1891 (A. D. 495); SPP. xx. 139 (A. D. 531).

[8] C.J. iv. 32. 26.

[9] Nov. 136.

[10] SPP. xx. 139.

[11] P. Cairo 67126.

[12] P. Flor. 350.

[13] P. Lond. 1736.

[14] P. Lond. 1737.

[15] P.O. 1714-8; SB. 4652 (A. D. 304); P. Thead. 10 (A. D. 307); Gr. Pap. II. 72 (A. D. 308); P. Bad. 27 (A. D. 316); P. Flor. 14 (A. D. 328); P. Thead. 12 (A. D. 330); P. Bad. 28 (A. D. 331); P. Oslo 41 (A. D. 331); PSI 215; P.O. 1041 (A. D. 381); P.O. 1318; P. Oslo 162; P. Leipz. 14 (A. D. 391).

[16] SPP. xx. 90.

[17] P. Leipz. 13 (A. D. 366).

subject of litigation in A. D. 300, and must have proved a source of dispute in general.[18] The *depositum* is comparatively rare thereafter.[19] The last example of this contract seems to be A. D. 376 and this is the only example of a *depositum* of gold.

The loans of gold currency very rarely specified the interest. In a few cases this loan is said to be without interest (ἄτοκος). The word for interest varies. While τόκος is the usual term, we find such expressions as τὸ διάφορον,[20] ἐπικέρδια,[21] παραμυθία,[22] φιλάνθρωπος[23] and μισθός.[24] The use of these terms may indicate an attempt to avoid the statutory limits. Thus the loan of 1 s. less $7\frac{3}{4}$ c. to a sitometres, apparently for fifteen months, had as interest (μισθός) a half a solidus or a rate of approximately 50%.[25]

The Byzantine money lender seems to have originated the idea of discount or deducting the interest in advance.[26] Thus a loan of three solidi each less two carats called for a payment of three full solidi in three separate months. Similarly at Oxyrhynchus the debtor received six solidi one and a half carats while giving a note for seven solidi.[27] The document is fragmentary but it seems clear that the note was discounted in advance. A loan of 8 s. less 32 c. which is stated to be without interest is presumably a similar discount.[28] Whether all loans where the contract calls for a certain number of solidi each less so many carats represents the discount for interest, it is difficult to say. One or two examples of such loans will show the difficulty of adopting any uniform explanation. A loan of A. D. 569 is of complex character: 6 s. each less 5 c. are said to be without interest, but the borrower pledged for repayment an exedra with an

[18] SB. 7338.

[19] P.O. 1714 (A. D. 285-304); SB. 7338 (A. D. 300); BGU. 941 (A. D. 376); P. Aberdeen 180; P.O. 1774; P. Lond. 153 (4th cent.).

[20] P.O. 1042, 1130, 1891, 1969; P. Rend. Harr. 86 (A. D. 444) where the rate is 25%.

[21] PSI. 1081; P. Giess. 53; P. Würz. 17; P. Lond. 1737.

[22] SPP. xx. 112.

[23] SB. 5285.

[24] P. Gen. 12.

[25] See note 22. The readings are uncertain. In line 1 the date is given as the 9th indiction; in line 5 as the 8th indiction. If the loan were only for three months, the interest is abnormally high. It is possible that Sergius received the half solidus as wage for measuring corn, and that Wessely was unjustified in calling μισθός as a mistake for τόκος.

[26] S.B. 7201 (A. D. 538). Few loans can be precisely dated in the sixth century but they are generally on the minus carat system except where interest is specifically stated (P. Cairo 67126; PSI. 964; P. Lond. 1736-7). A separate contract for arrears of interest appears in P. Lond. 1721. The minus carat loans: P. Cairo 67128, 67162; 67156, 67309; SB. 4498, 4501; BGU. 725; P. Flor. 300; Kl. Texte. 334.

[27] P.O. 1971.

[28] P. Amh. 148, cf. P. Lond. 1319. The contract in SPP. xx. 217 (A. D. 580) seems to be based on some such loan.

underground chamber and cistern. This goes to the creditor without rental apparently in lieu of interest (*παραμυθία*) until the six solidi are repaid; the other part of the loan is of 9 s. each less 6 c. The interest (*ἐπικέρδια*) is stated as 300 T. per month for each solidus. The loan runs until the debtor repays the nine solidi.[29] In this loan the debtor evidently expected to repay the 15 solidi in full, but part of the loan is antichretic in form as the creditor has the use of the exedra in lieu of interest, while in the second part the payment of 300 T. monthly per solidus as interest is specified. If the creditor deducted six carats from each solidus and collected 300 talents monthly in addition, the legal rate of interest was probably disregarded.[30] In the loan of 1 s. less 7¾ c. mentioned above, the *μισθός* for 15 months (?) is said to be half a solidus. This rate of interest alone is about 50% but if the original loan was a solidus and there was a discount of 7¾ c. taken in advance, the interest for 15 months on 24 c. is 19¾ c. or about 1⅓ c. per month.[31]

The antichretic loan becomes increasingly rare in the Byzantine period, and the right of habitatio in lieu of interest is seldom granted.[32] A curious feature of some loans in money is that the interest was paid in kind. Thus a loan of 10 s. for six months called for 20 bundles of flax for interest (*τὸ διάφορον*).[33] A similar loan of 5 s. required the monthly payment of 5 bundles of 5 minae each monthly.[34]

In the Roman period loans of wheat were repaid with 50% interest at harvest time. This same rate continued in the fourth century. Thereafter the rate of interest is seldom specified.[35] In A. D. 314 seed was distributed at Theadelphia [36] at 50% interest but no mention is made of interest in the distribution of seed on the estates of the sixth century.

The gnomon of the idiologus forbade loans *ἐφ' ὑγροῖς* which presumably meant loans on wine and oil. Constantine permitted these loans at the same interest rate as wheat but loans of this kind are never found in Egypt.[37] However, a form of contract appears in the

[29] P. Cairo 67309.

[30] See Currency in Roman and Byzantine Egypt, 160ff.

[31] Note 25.

[32] P. Lond. 870; P. Cairo 67309 (A. D. 569); P. Lond. 1723 (A. D. 577); SB. 5285 (A. D. 607).

[33] P.O. 1130.

[34] SPP. xx. 103; SB. 7175; SB. 4496-7; PSI. 239.

[35] P. Flor. 54; PSI. 42; P. Amh. 147; P. Oslo 37 (A. D. 295), 38 (A. D. 374/5, last example with interest).

[36] P. Flor. 54. Cf. P.O. 123.

[37] C. Th. ii, 33. 1. Loans of oil were permitted by Diocletian and his constitution was incorporated in the Justinian Code (iv. 32. 23).

third century and becomes more common in the Byzantine period which seems to be a form of sale but may be a loan in disguise. These contracts acknowledged the receipt of a definite sum of money and call for the delivery of some agricultural product in the future, usually wine which is to be delivered at the vintage, but various cereals, hay, wool, or hemp may be the object of delivery. Taubenschlag classifies these as Sales on Delivery.[38] Bell seems to leave the problem unsettled.[39] It seems that we must leave to the jurist to decide whether these are actual sales or concealed loans under the fiction of formal sale but where the price is paid many months in advance of delivery.

The loans of wheat were probably used as a pattern for loans of other commodities. Loans of wine are twice recorded and once a loan of clothing, though the latter probably is part of a dowry to be returned.[40]

Loans by Apion to his tenants do not mention interest, though it is unlikely that such loans were gratuitous.[41] The Church sometimes appears as a money lender, and a lease of a bakery in a monastery received a loan for operation.[42]

While nexum had long been abolished by Rome the question may well be raised whether nexum was not the customary law of Egypt and whether Roman private law prevailed over customary law. One of the dark pages in the history of the period is the right of the creditor to seize not only the person of the debtor but also the various members of his family. Philo Judaeus seems to recognize this right as legal, and in the history of monasticism other examples are cited. It is possible that debt, which seems to be a chronic condition of the peasant, rather than the exactions of the tax-collector was the cause of *ἀναχώρησις* in the Roman period.[43]

While inflation must have wiped out many debts in the fourth century, the imposition of the tax on trades, if Zonaras is to be believed in his account of the emperor Constantine, caused many to sell their children into slavery or deliver them to the procurer. This is illustrated in Egypt by a Christian letter which tells of a wine-merchant who borrowed money to pay his tax, was imprisoned and

[38] Taubenschlag, op. cit. 254f. A citation of examples *ibid.* p. 255 note 4. Add P. Edfu, 2.
[39] P. Lond. 1774.
[40] P. Lond. 999, 1001; P. Rend. Harr. 88 acknowledges debt of women's clothing.
[41] P.O. 130, 192, 194. See also Coloni.
[42] P. Iand. 44; P.O. 1890 (lease of bakery). See Leases for similar loans for operation expenses.
[43] Philo, spec. leg. iii. 30 (159); Hieronymus, c. 12.

his children enslaved.[44] In the sixth century private prisons, though illegal by imperial law, were maintained openly in Egypt by the owners of estates. Presumably the prisoners were held as ransom for debt. The contracts of *paramone* may very well be pledges of the person in virtual slavery for the repayment of the debt.

LOANS WITH RIGHT OF HABITATIO

IV P. Lond. 870 Panopolis. Loan of 5 sol. on security of half share of house, apparently with right of occupancy in lieu of interest.

577 P. Lond. 1723 Syene. Loan of 4 sol. on security of fourth share of house of three stories with right of habitatio.

607 SB. 5285 Panopolis. Loan of two thirds of a solidus weighing $15\frac{1}{2}$ c. Alexandrian standard. Debtor pledges as security the third share of a home. Creditor has the use and right to occupy in lieu of interest.

8. BANKING AND PUBLIC TREASURIES

a. PRIVATE BANKING

The history of private banking in the Byzantine period is shrouded in obscurity. The τραπεζίτης is rarely mentioned in documents of the fourth century.[1] In the fifth century he appears apparently as treasurer of a guild and in the sixth century the accounts of Apion seem to indicate that he is treasurer or cashier of the estate.[2]

The bankers of Constantinople had their agents at Alexandria. Anastasius who was castresianus of the imperial bank at Constantinople was also a silver merchant (ἀργυροπράτης) or private banker. A loan made by him to Victor and Apollos while they were in the imperial capital was to be repaid at his branch (ἀποθήκη) in Alexandria.[3]

This seems the extent of the available information on private banking in Egypt during the period here discussed. This lack of

[44] P. Lond. 1915, cf. BGU. 1024 for the woman who gave her daughter as a prostitute to support herself. Further references in Meyer, Juristische Papyri, 12.

[1] The τραπεζίτης τάξεως πριουάτης of Heracleopolis (PSI. 310, A. D. 307) may be a private banker.

[2] Norsa, Annali della scuola di Pisa vi (1937), 1. The moneys gathered by the pronoetae on Apion's estate were paid over to a banker (τραπεζίτης) who seems to be the treasurer of the estate (P.O. 2195).

[3] P. Cairo 67126. In Edict xi the chrysonae and zygostatae of Alexandria seem to have had some function in exchange banking under the control of the governor.

information does not necessarily imply that private banking was non-existent. If, as has been said before, we were confined to the papyri for our knowledge of Egyptian glass, we could well question the very existence of that large and active industry.

b. PUBLIC TREASURIES

The τράπεζα δημοσία of the fourth century is apparently not a municipal institution but the treasury for the nome. Although payments were authorized for municipal expenditures this was done in A. D. 304 by the logistes of the nome on the order of the prefect; and Grenfell and Hunt show clearly that τὰ πολιτικά meant state and not municipal funds.[4] In one case it is expressly called the public bank of the nome.[5] Of wider scope is the provincial bank (τράπεζα τῆς ἐπαρχείας), and in the sixth century the μεγίστη τράπεζα of the Thebaid is the treasury for the arcaria, the largitionalia and all the taxes in kind which were said to pertain to it.[6]

Since the logistes approved payments from the public treasury, it may have been under his control. In the latter part of the fourth century the chrysones acknowledged the receipt of taxes in the Thebaid but the control of the provincial treasury seems to come under the provincial bureau of the governor.[7]

The ταμιακὸς λόγος was originally a fund for the receipts from imperial estates. In the fourth century the sums paid for recruits, before the aurum tironicum was established by Valens, were deposited in this account which presumably was a department of the treasury of the nome. The logistes at Oxyrhynchus seems to have drawn on this fund to pay the recruits while at Hermopolis the ἐπιμελητὴς τιρώνων authorized payments.[8] Later the chrysones of the province acknowledged the receipt of 72 s. from the provincial bureau for the recruiting fee. Apparently this was to be paid to some recruit.[9] The emperor Julian authorized the appointment of a zygostates in every city.[10] The original function of this official was to settle disputes, seemingly between private persons, concerning the weight of individual gold coins in circulation, an activity somewhat analogous to that of a modern Commissioner of Weights and Measures. The position of the zygostates undoubtedly led to oppor-

[4] P.O. 1104, 1419.
[5] Harv. Studies li (1941), 49.
[6] P. Cairo Pr. 33 (ca. A. D. 340); P. Flor. 377 (VI).
[7] P. Leipz. 63 (A. D. 388).
[8] Wilcken Chr. 465-6. See PSI. 285 (A. D. 301); P. Leipz. 64.
[9] P. Leipz. 61 (A. D. 375).
[10] C. Th. xii. 7. 2.

tunities for banking and exchange.[11] The zygostates of Cynopolis seem to have acted as paymasters of municipal funds.[12]

The buyer of gold (χρυσώνης) probably began his activities as a government agent in buying gold from the Egyptian peasant. This began in Egypt when the prefect authorized the purchase of gold at 100,000 (denarii?) a pound, twice the price set in the edict.[13] Records of payments of gold and silver, twice in ten parts of silver to one of gold, once twelve and a half parts to one are preserved but cannot be precisely dated.[14] The chrysones became the official receiver of the provincial taxes paid in gold and seems to have retained this function to the end of Byzantine rule.[15] The chrysones also was identified, though rarely, with the collector (ὑποδέκτης).[16]

The gold and silversmiths probably acted as bankers and dealers in exchange although direct evidence for this period is lacking.[17] However at Hermopolis the goldsmith's standard was used as the equivalent of the private standard at Oxyrhynchus.[18] The ἀργυροπράτης may have acted in some capacity as tax collector, and seems to be the official at Alexandria to whom the taxes collected on Apion's estates were delivered.[19] As a private banker he is known through Justinian's Novellae and Edicts.[20]

In the sixth century the financial bureau of the pagarchy is called the δημόσιον λογιστήριον.[21] The official in charge at Antaeopolis appears as the βοηθός (or βοηθὸς μαγίστερος) who received a salary of 12 s. and Aphrodito may have contributed 4 s. more. At Oxy-

[11] P.O. 1886. See Rev. de l'Orient. chrét. xii (1907), 176.

[12] P.O. 2028.

[13] P.O. 2106. For the date see Segrè, Byzantium xv (1941), 241. The official known as ἐπιμελητὴς χρυσοῦ (P. Thead. 33, A.D. 311) may have had general oversight (as in P. Würz. 15). The statement that this is twice the price mentioned in Diocletian's Edict (XXX. 1) rests on the assumption that the reading of the sum in the edict has been correctly interpreted. This is subject to considerable doubt (see Mattingly, Num. Chron. 1946, 111). The chrysones is first mentioned in A.D. 341 (P. Würz. 15).

[14] P.O. 1524; SB. 6086; P. Bremer 83.

[15] P. Leipz. 62; P. Flor. 95; P. Cairo 67033-5, 67038-9.

[16] P.O. 1919. See P. Würz. 15.

[17] This exchange was between coins of different metals, not, as in the early empire, an exchange between various local issues or between local and imperial issues. Under the uniform coinage system of the early Byzantine rulers the activities of exchange banking were much curtailed.

[18] Currency c. 12.

[19] P.O. 127, 144, 1844.

[20] Edict vii; Nov. cxxxvii.

[21] Hermopolis: P. Lond. 1756; P. Cairo 67169: Kl. Form. 118, 1035-6. Antaeopolis: P. Cairo 67054, 67057. Oxyrhynchus: P.O. 125; P. Goth. 9. At Antaeopolis the βοηθός was also ψηφιστὴς παιδευτηρίου. This seems the sole evidence for a school in the sixth century outside of Alexandria. Cf. SB. 5941 (A.D. 509) where Flavius is called γραμματικὸς καὶ παιδευτὴς Ἑλληνικῶν λόγων ἐλευθερίων.

rhynchus Cyrus was ἐπιμελητὴς between A. D. 566-4. This is probably the same Cyrus who in A. D. 572 was the official of the δημόσιος λόγος where was registered the property of Stephanous.[22] The λογιστήριον of Oxyrhynchus paid the salary of a tabellarius of the public post and the rental of two shops, weaving and dyeing, which were apparently used for imperial purposes. The κελλαρίτης who as agent of Heracleopolis brought supplies to the posting station at Pinarchthis was probably an employee of the λογιστήριον of Heracleopolis.[23]

The village of Aphrodito had its δημόσιος λόγος which rented out land and evidently received the taxes of the village. This bureau seems to be administered by a βοηθός but the hypodectes who received the taxes also made payments when the order was countersigned by proto-cometae. The expelleutes of Antaeopolis is also found in charge of this bureau, but probably for some special reason.[24]

9. PRICES OF CEREALS AND OTHER FOODS

ARACUS

314	PER. E. 2000	Hermopolis	8000 dr. per artaba
360	P.O. 1056		40 artabas valued at 72 million denarii exchanged for 500 lbs. of meat.
V	P. Giess. 105		Order to sell 500 artabas at 1700 talents instead of 1800 talents.

BARLEY

III/IV	P. Fay. 131	Fayum	14 dr. per artaba
III	Gr. Pap. ii. 77	Oasis	20 dr. per artaba
III	P.O. 1733		140-160 dr. per artaba
314	PER. E. 2000	Hermopolis	10,000 dr. per artaba
315	Harv. St. li (1940) p. 44	Caranis	10,000 dr. per artaba

[22] P.O. 126. The editors seem to prefer to regard κῦρος as equivalent to κύριος and not a proper name.

[23] The μεσῖται of the public granaries in the Fayum probably served in a similar capacity.

[24] P. Cairo 67103, 67049, 67117-8. In P. Cairo 67105 the expelleutes acted in conjunction with the apaetetae and syntelestes. Nothing is known of the village treasury in the fourth century except that the logistes exercised some supervision over the accounts in A. D. 304 (P.O. 895) while in A. D. 340 the praepositus pagi of Hermopolis had this function (BGU. 21). The pagus itself may have had some sort of treasury in this period since the praepositus issued receipts for taxes in some instances (P. Cairo Pr. 33; SB. 7756).

316	SB. 7621	Philadelphia	1,000 dr. per artaba
338	P.O. 85		500 denarii for 13 artabas
ca. 346	P. Lond. 248		30 T. per artaba
388	P. Leipz. 63	Coptos	30 modii per solidus
	SPP. xx. 75	Hermopolis	25 T. per artaba
V/VI	Kl. Form. 1071	Fayum	66⅔ art. chancery measure 3 s. less *X*. c. (?)
VI	P. Cairo 67141	Aphrodito	1 art. barley = 3 art. salt
	P. Cairo 67138	"	25½ art. for 23 c.
	P. Cairo 67139	"	1 art. per c. (see Folio IV. verso) 20 art. for 1 s. less 2 e. (Folio VI verso)
618	P.O. 2010		816 art. for 45 sol. (ca. 18 artabas per sol.)
VII	P. Baden 95	Hermopolis	15 art. per 1 s. less 6 c.

BEANS

IV	PER. E. 206	Hermopolis	800 dr. per artaba
V/VI	PER. E. 420	?	2 carats per artaba (cited by Segré)
VI/VII	P. Baden 173		48 solidi and 2 solidi for interest repaid by 500 artabas, modius measure (10 art. per s.)

CNECUS

VI	P.O. 2058		14 artabas per solidus

CUMMIN

IV/V	PER. NN. 74	Heracleopolis	10,000 denarii per sestarius

LACHANUS

VI	P. Lond. 1673		12 artabas per 2 solidi less 12 carats

WHEAT

ca. 293	P.O. 2142		300 dr. per art. in the tenth measure
294	Rend. Harr. 93 (appendix)	Oxyrhynchus	220-232 dr. 108 dr. for half artaba (?)
312	Harv. St. li	Caranis	100 dr. per modius castrensis of emmer
314	PER. E. 2000	Hermopolis	10,000 dr.
315	SB. 7621	Philadelphia	3,000 dr.

335	P. Lond. 1914	Alexandria	14 T.
338	P.O. 85 *		24 T. for an art. in tenth measure?
p. 345	P. Princeton 183 V.	Fayum Hermopolis	334 T. 50 T.
ca. 350	P. Lond. 427		
III/IV	SPP. xx. 75	"	30 T.
IV	P. Lond. 984	?	480 art. for 1600 T.
IV	SPP. xx. 81	?	26 T. ($183\frac{1}{3}$ T. = 1 solidus)
IV/V	P. Princeton 136		ca. $7\frac{1}{2}$ c. (40 choenices)
V	Kl. Form. 769	Hermopolis	ca. $2\frac{1}{4}$ c. ($59\frac{1}{4}$ art. for 5 s. $22\frac{1}{2}$ c.)
V/VI	PSI. 46	"	14 art. per solidus
539	P. Lond. 1001	"	6 c. for $1\frac{1}{3}$ art. and 10 cnidia of wine
541	P. Cairo 67320	Antinoe	40 modii per s.
ca. 550	SEG. viii 355	Alexandria	Wheat allowed for workmen in state factory 10 art. per s.
ca. 557	P.O. 1911		20 art. (chancery measure) per s. (1000 art. for 50 s. less 5 c.)
VI	P. Lond. 1886		40 myriads (denarii) per art.
	P.O. 1907		$9\frac{1}{6}$ art. (chancery measure) per solidus
	P.O. 2022		$9\frac{1}{4}$ art. 1 s. less 4 c.
	P.O. 1909, 1920		10 " solidus
	P.O. 154 V (= 2024)		10 " 1 s. less 6 c.
	P.O. 1907 V		11 and $11\frac{1}{2}$ art. 1 s.
	P.O. 2022		ca. 11 art. per s. (440 art. ῥνπ. 39 s. 15 c.)
	P.O. 1916		ca. 12 art. per s. ($215\frac{1}{2}$ art. = 18 sol.)
	P.O. 2023		12 art. per s.
	P.O. 2033		13 art. per 1 s. less 6 c.
	P.O. 2058		ca. 14 art per 1 s. (230 art. = $16\frac{1}{2}$ sol.)
	P. Lond. 1673	Ibion	$8\frac{1}{4}$ art. per 1 s. less $6\frac{1}{2}$ c. (33 art. = 4 s. less 26 c.)
	P. Lond. 1907	Hermopolis	12 and 15 art. per sol.
	P. Cairo 67062	Aphrodito	8 art. per s.
	P. Cairo 67289	Lycopolis	10 art. per 1 s. less 6 c.
			4 art. for church compounded for $7\frac{1}{4}$ c.

* This is dubious. The reading of the text seems to be 24 art. αταλ( ) in the tenth measure as the amount left in stock. But Mr. H. I. Bell (note on P. Lond. 1914) gives it as 24 T. per art.

	67229	Aphrodito	12½ art. per 1 s. 2½ c. (50 art. = 4 s. 10 c.)
	67139	"	37½ art. and ½ s. = 3 s. less 3 c. (Folio VI. verso, 5)
	67138	"	24 art. per s. (Folio I recto, 12 8th indiction) 25 art. for 5 s. less 10½ c. 9th indiction, line 55
	PSI. 88	?	12½ art. per s.
	Chron. d'Égypte (1946), p. 121		6 art. per s. (in a contract of loan)
VII	CPR Coptic 10	?	15 art. per s.
	P. Baden 95	Hermopolis	12 art. per s. (ll. 134, 237)
			8 art. per 1 s. less 5 c. (lines 192, 405, 499)
			10 art. per 2 s. (1⅔ art. = 9 c.)
			1 art. per 1 s. 15 c. (line 419) should read 8 art. per 1 s. 5 c.)
Byz.	P. Gen. 15		10 art. per sol.

Wheat sold in time of famine at 5-5½ artabas per solidus in time of Pachomius (St. Anthony (Budge. tr.) p. 393).

WINE

Late III	Gr. Pap. ii. 77	Oasis	16, 20 dr. per chous.
	P.O. 1733		160 dr. per ceramion.
293	P. Baden 26	Hermopolis	5 dr. per ceramion.
314	PER. E. 2000	Hermopolis	30 cnidia of (wine?) 1800 dr. each.
316	P.O. 2114		65 den. per sestarius (old wine).
ca. 322	P.O. 1139		3000 dr. per ceramion.
340	BGU. 21	Hermopolis	3 T. per sestarius.
			40 T. for 2 σπαθίται
			3 T. for ἀγγαρία
			1 T. 60 dr. for a unit of sour wine
ca. 350	P. Lond 249		25 T. per σπαθίον. Adaeratio for arrears.
IV	SPP. xx. 81		20,000 dr. per cnidion.
			5 T. per cnidion.
			20 T. per cnidion.
			20 T. per σπαθίον.
	SPP. xx. 75	Hermopolis	8 T. per cnidion (?).
			20 T. per σπαθίον.
			4 T. 2000 dr. per sestarius. (80 sestarii = 346 Talents).

	P. Fouad. 74		1 diploun (wine?) $1\frac{1}{2}$ c.*
	P. NYU. Inv. No. 1001	Fayum	1/24 and 1/22 s. per diploun.
	Rend. Harr. 148	Antinoe	Adaeratio of wine. 120-180 denarii.
	PSI. 960	"	16,000 T. per cnidion of (wine) ?
	959		4,000 T. " " " ?
			68,000 T. " " " ?
	PRG. iii. 9		4 s. per *σπαθίτης*.
	P. Oslo 146	Oxyrhynchus	3 T. per ceramion.
	P. Lond. 984		330,000 den. per sestarius.
	P. Cairo Pr. 45	Fayum	48 T. (?) for 17 sestarii.
	BGU. 34	?	3700 dr. for 30 cnidia? Rations of workers.
	P.O. 1298		7. T. for 1 *σπαθίον*.
	P.O. 1288		2 T. 2000 dr. for ceramion.
	Kl. Form. 968	?	2 s. for 88 dipla.
	PER. 37	Hermopolis	200 T. (2 solidi) for 100 sestarii.
454	P. Lond. 1773	Oxyrhynchus	50,000 T. for 100 cnidia.
V/VI	SPP. xx. 144	Hermopolis	4 s. for 250 measures (to be paid if wine is not up to standard or if it becomes sour).
538	P. Lond. 999	"	Loan of 2 s. less 12 c. for 400 sestarii.
539	P. Lond. 1001	"	Loan of 6 c. for $1\frac{1}{3}$ artabas of wheat and 10 cnidia of wine.
541?	Cairo 67320	Antinoe	1 s. per 5000 units of wine or meat.
ca. 570	P. Lond. 1716	"	Loan of 40 c. without interest—pledge 73 jars of wine, 40 of which are worth 1 s. less *X* c.
VI	PSI. 1122		2 s. of 23 c. for 1000 sestarii in 200 jars furnished by buyer.
VI	Cairo 67287	Aphrodito	2 jars $1\frac{2}{3}$ c.
			2 jars and 12 eggs $1\frac{5}{6}$ c.
VI	Cairo 67058		2 jars and 24 eggs $1\frac{2}{3}$ c.
			1 jar $\frac{2}{3}$ c., 2 c.
VI	Cairo 67146		$6\frac{1}{3}$ s. for 532 jars.
	PSI. 953	Oxyrhynchus	1 s. per 30 dipla.
	P.O. 2058		18 s. for 600 *σηκώματα*.
	P. Prince. 106		1 s. for 45 *σηκώματα*.
	P. Baden 55		$\frac{1}{3}$ s. paid in advance for 66 cnidia of wine?

* The date in the fourth century for this unit of the carat seems unlikely.

	P.O. 1920		4 s. for 45 sestarii wine, and 25 dipla. (Annona)
	Cairo 67145		63 ἀγγεῖα for 18 c.
VI/VII	SPP. xx. 244		2 λιτά per cnidion of sour wine.
VII	CPR. Coptic 21		2 s. for 100 cnidia.
	SPP. x. 254	Fayum	1 s. for 15 cnidia.
606	SB. 4505	Thinis	1 s. less ½ c. for 75 κολοβοί each of 7 sestarii.
613	SB. 4504	"	⅓ s. less ¼ c. for 25 κολοβοί each of 7 sestarii.
619	P. Edfu 2	Apollinopolis	116 κολοβοί for 1 s. (Loan in advance).

ALLOWANCES OF WINE

III/IV	W.O. 1485	Thebes	1 diploun to grandfather daily (?) and similar allowances for various groups of workmen.
293	PSI. 83	Oxyrhynchus	2 ceramia monthly (?) to workmen on estate.
IV	BGU. 34	Hermopolis	Apparently 1 cnidion daily to workmen on estate.
488	P.O. 1888		1 litre, soldier's ration.
V	P. Rend. Harr. 100		2 dipla to various employees of a large estate for the year (?)
V/VI	SB. 4643-7		Workers in vineyard receive half a sestarius daily.
535	P.O. 1893		6 dipla of wine, 6 sestarii of oil, 2 artabas of bread, 20 lbs. of meat and 1 solidus as pay for two shipwrights for 45 days.
590	Kl. Form. 283	Oxyrhynchus	3½ cnidia for 14 bucellarii daily?
VI	PSI. 953	Oxyrhynchus	35, 279½ dipla of wine and 1343 dipla of sour wine distributed on the estate of Apion for the 1st indiction including payments to churches and monasteries. Adjutor 24 dipla yearly. Subadjutor 16 dipla yearly. Goths (including women and children) 219 dipla monthly. Bucellarius 7½ dipla per month. 2 bucellarii 8 dipla for half a month.

			3 bucellarii 21 dipla for 7 days or 1 diploun per day each.
			139 prisoners receive 20 dipla on a feast day; on another occasion they receive 40 dipla for three days at Easter.
			Philoxenus 72 dipla.
			Notary 60 dipla a year.
			2000 dipla were purchased and sent to Apion in Constantinople.
VI	PSI. 165	Oxyrhynchus	Allowance for guard, 1 diploun per night.
VI	P.O. 2049		Distribution of wine to employees of estate.
VII	Kl. Form. 978		1⅓ cnidia and 12 sestarii (12 annonae)

Undetermined quantities as rations: P.O. 1752 (378), to sawyers; SPP. xx. 95 (4th cent.), workmen on estates; PSI. 838 (4/5), complaint that ration was not paid; PSI. 194 (566), three dipla for workmen on estate; SB. 4905 = 5296 = Kl. Form. 1110 (7th cent.), 6 allowed to bath attendant.

Wine as gratuity or as part of wages: PSI. 472 (295), three ceramia; P.O. 92 (337) one ceramion to veterinary; PSI. 784 (362), two cnidia of wine and one artaba of wheat to painter; P. Oslo 146 (4th cent.), one ceramion allowed to vine dressers; P.O. 1950 (487) four dipla to aide of exactor as a gratuity; SPP. xx. 196 = SB. 5297 (6th cent.), one lak to painter; Kl. Form. 358 (6th cent.) five and a half cnidia or 22 sestarii for scholasticus.

OIL (PRICES)

Late III	Gr. Pap. ii. 77	Oasis	2 choes 12 dr.
292	P. Baden 26	Hermopolis	2 cotylae 20 dr.
			1 measure (?) 56 dr.
338	Rend. Harr. 73	Oxyrhynchus	Report by guild of stock in hand
	P.O. 85		" " " " " " "
334, 349 or 364	SPP. xx. 93		3 sestarii oil 4,000 dr.
390	P.O. 1753		80 sestarii olive oil 2 s.
IV	PSI. 960		16,000 T. per cnidion.
IV	P. Lond. 1259		½ cask of oil 68 T.
			3 sestarii raphanus oil 2 T. 4000 dr.
IV	P.O. 1494		3 T. per cnidion of olives.

IV	PER. E. 1014	Hermopolis	400 T. for oil.
ca. 579	P.O. 2052		33 sestarii Spanish oil 1 s. less 5 c.
VI	P. Iand. 103		4 jars—1 small jar for 2 s. 2 c.
VI	P.O. 2058		5 measures raphanus oil 2½ s. 5 jars olive oil ⅓ s.
VI/VII	SB. 7668	Panopolis	Agreement with oil worker to pay 300 myr. silver monthly for ἀγγάριον and 250 myr. yearly for τελώνιον.
VI	SPP. x. 251		6 sestarii raphanus oil 2 s. 160 " " " 29½ s.
VII	P. Baden 95	Hermopolis	80 sestarii olive oil 2 s. less 8 c. 12 " " " 6 c. 43 " " " 1 s. less 2 c. 37 " " " 12½ c.
	SB. 5303	?	Oil 3 folles.
	SPP. x. 254		15 cnidia of ? 1 s.
Byz.	P. Cairo 67145		15½ rations = 1 c. or 3 sestarii per c.

OIL (ALLOWANCES)

295	PSI. 472	Oxyrhynchus	12 cotylae part of mason's allowance.
IV	BGU. 34	Hermopolis	Raphanus oil to workmen.
535	P.O. 1893		6 sestarii part of payments in kind to two shipwrights for 45 days.
567	P. Lond. 1708	Antinoe	1 solidus allowed for yearly supply of oil for personal use.
578	P.O. 1043		3 sestarii for 3 men for 15 days.
VI	Kl. Form. 1100		5¼ sestarii allowed to 2 stone carriers.
VII	P. Baden 95	Hermopolis	12 sestarii as part of pension of woman.
VII	Kl. Form. 978		12 sestarii part of annona of messengers.
Byz.	BGU. 960	Hermopolis	2 sestarii to stone carrier.
	BGU. 961	"	1 sestarius to workman daily and 2 sestarii to foreman.
	BGU. 963	"	3 sestarii to bucellarius.
	BGU. 966		2½ sestarii allowed for 9 stone carriers and one artisan for 4 days.
	SB. 5306		1 sestarius allowed to church.

Kl. Form. 888		2 sestarii for 12 men and 2 foremen for one day.
889		4 sestarii for 9 stone carriers and 10 artisans for 3 days.
890		6 sestarii for 31 sawyers for 1 day.
		30 sestarii for 10 bucellarii for 1 day.
893		3 sestarii allowed to painter.
896		1 sestarius allowed to soldier.
P. Cairo 67145		5 rations of oil in one sestarius.
P. Goth. 18		150 sestarii as part of salary of clerk.

BREAD *

488	P.O. 1888		4 lbs. of bread and 1 litre of wine daily (?) ration of soldier.
VI	P.O. 1920		1 artaba of wheat yields 80 lbs. of bread for the military annona.
VI	SPP. x. 60	Fayum	5 artabas of bread for a half solidus.
586	P.O. 2196		Rations for 8 days: 150 lbs. of bread, 17 dipla of wine, and 50 lbs. of meat per day. (150 folles per ration).
VII	P. Baden 95	Hermopolis	σιταρικὰ σκεύη ½ c. per lb.

1000 T. paid for an unspecified quantity (PER. E. 1014).

Monks' allowance: a pound of bread daily and a box (?) of oil every three months (St. Anthony [Budge's Tr.] p. 297).

Allowance to refugees from Persian invader, 1 carat per day for men, 2 carats for women (John the Almoner c. 7).

Wages of monk 1 c. per day (ate pulse worth 1 follis and gave the rest in charity to a prostitute, *ibid.* c. 36).

CABBAGE (?)

IV	PER. E. 1014	Hermopolis	650 T. for κεφαλ( ) quantity unspecified. This form can be restored in various ways and the meaning is uncertain. It may be any vegetable such as cabbage, or it may mean a fish.

* For the annona of soldiers see p. 218.

CHEESE

VI	P. Cairo 67330		$1\frac{1}{12}$ c.
	67058		11 cheeses $2\frac{1}{12}$ c.

COLOCYNTHIA

IV	PER. E. 1014	Hermopolis	100 T. quantity unspecified.

DATES

346(?)	P. Lond. 248		1 artaba 15 talents.
IV/V	P.O. 1656		10 myr. denarii for unspecified quantity.

A palm tree, yielding 12 clusters of dates, gave sufficient food for a year (St. Anthony [Budge's tr.] p. 314).

EGGS

VI	P. Cairo 67330	Aphrodito	1220 for 17 carats.
	P. Cairo 67058		1454 for 20 carats.
			100 for $1\frac{2}{3}$ c.
			2 jars and 24 eggs $1\frac{2}{3}$ c.
	P. Cairo 67287		70 for 1 c.
			24 for $\frac{1}{3}$ c.
			2 jars of wine and 12 eggs $1\frac{5}{6}$ c.
	P. Cairo 67212		75 eggs for 1 c.
			200 eggs for $2\frac{2}{4}$ c.

The average price of eggs seems to be a sixth of a carat per dozen.

FISH

Prices of fish but in quantities unspecified are found in P. Lond. 429 (8 T.), PER. N.N. 74 (6 myr. den.), P. Cairo 67287 ($1\frac{2}{3}$ c. for pickled fish), SPP. xx. 244 (15 folles for *νεαρόν*).

FRUITS

396	P.O. 1133		4 solidi less 600 myriads price of unspecified quantity.
IV	BGU. 34		2000 dr. for a quince.
512	SB. 7369	Hermopolis	A basket of fruit valued at 3000 talents and at 4000 talents.

HONEY

390	P.O. 1753		25 sestarii of honey 1 solidus.
IV	PER. 37		20 T. for unspecified quantity of honey.
VI	P. Cairo 67058		$10\frac{1}{4}$ c. for unspecified quantity of honey.

MEATS

338(?)	PSI. 202	Oxyrhynchus	1000 lbs. of pork 900 den. Sale of fish for one month was 11,000 lbs.
390	P.O. 1753		3½ lbs. meat 105 myriad denarii.
IV	SPP. xx. 93		1½ lbs. meat 8,000 dr. 2¾ lbs. meat 11,520 dr. 3⅔ lbs. meat 15,000 (?) dr.
	SPP. xx. 81		1 lb. 8,000 dr.
	SPP. xx. 75		1 lb. meat 26,000 dr.
	P. Lond. 984		1 lb. meat 333,000 denarii.
	P. Lond. 1259		1 lb. meat 3,200 dr. 1 lb. liver 3,200 dr. 4 pigs trotters 2 T. and Meat and relishes (quantity unspecified) 12 T. Stew 5 T.
	P.O. 1730		Mince meat (*ἰσακίων*) quantity unspecified 300 myr.
	PER. E. 1014		Meat 500 T. (quantity unspecified)
IV/V	P.O. 1656		1 lb. of meat 25 myr. denarii. Trotters 12 myr. denarii.
V/VI	PSI. 290	Oxyrhynchus	Raw buffalo meat (quantity unspecified) 2 carats.
541	P. Cairo 67320	Antinoe	5000 unit rations of wine—meat 1 solidus.
551	P.O. 2012-4		Rations of soldiers 1 lb. of pork per month.
VI	P.O. 1920		120 lbs. of meat 1 solidus.

RELISHES (*ὀψάρια, ὀψαρίδια*)

IV	P. Lond. 1259	6 *ὀψαρίδια* for 6,000 dr. (plus)
	PER. E. 1014	1 sestarius of *ὀψάριον* 700 T. 1 sestarius of *ὀψάριον* 3 T. 150 nummi.
IV/V	P.O. 1656	*ὀψάριον* 12 myr. den.

Fish sauce (garum) in unspecified quantities sells for 15 myr. den. in PER. NN. 74 and 75 myr. den. in P.O. 1656.

SWEETMEATS (*τραγήματα*)

IV	SPP. xx. 75	8 sestarii of pulse and *τραγήματα* for the sacred crocodile at 8 T. 4000 dr. each.
	P. Lond. 1259	*τραγήματα* 2 T.

VEGETABLES

IV	PER. E. 1014		1 sestarius of onions 500 T. κεφαλ( ) = fish or vegetable 650 T. σκλαμια καὶ κολοκυθιν( ) 150 T.
IV/V	P.O. 1656		Cabbage 10 myr. den.

SALT

VI/VII	P. Cairo 67141	Aphrodito	1 artaba of barley (worth one carat) exchanged for 3 artabas of salt.

CLOTH, CLOTHING, ETC.

Late III	Gr. Pap. ii. 77	Oasis	Linen for burial 20 dr.
295	P. Leipz. 29	Hermopolis	Bequest of linen valued at 12 talents.
314	Études d. p. 1939	Caranis	Tunic 4000 dr., cloak 5000 dr.
340	BGU. 21	Hermopolis	κωμόδιον 24 talents, needle work 63 talents, and 24 σιλ( ) σπαθ( ) for it 15 talents each. Finished product 447 talents.
ca. 346	P. Lond. 247	Fayum	2 embroidered tunics (στιχάρια) 154 myr. den.
ca. 360	PRG. v. 29		1 small girdle (ζωνίδιον) ca. 30 sol. (?)
III/IV	Gr. Texte 22		Making kerchief (ἀλύσιον) 140 dr.
Early IV	SB. 7243 *		2 sandals 4 dr.
IV	P. Lond. 1259		Military adaeratio for cloaks (χλάμυδες): $\frac{3}{48}$th part = 13,000 dr. (ca. 208,000 dr. each) $\frac{5}{48}$th part = 25,200 dr. (241,920 dr. each) $\frac{7}{48}$th part = 31,400 dr. (ca. 208,000 dr. each).
	BGU. 629	Fayum	Embroidered tunic (στιχάριον). 4000 T. each.
	P.O. 1729		σαβάνιον (linen towel) 820 myr.
	P.O. 1740 †		5 στήμεια (yarn?) 2000 dr. 1000 dr.

* Probably third century.

† Most of the prices are given as if the cost was borne on half shares by the estate and some other, but the division varies.

			5 πηνία (bobbins) 500 dr. 340 dr. 5 κτενία (combs) 600 dr. 300 dr. 9 ἀλακάτια (distaff) 4000 dr. 1200 dr. 500 νυμφικά (bridal garments?) 2400 dr. 1000 dr. 1 πελύκιον (axe?) 600 dr. 300 dr. 25 λειτνία (?) 2680 dr. 1000 dr.
IV	P.O. 1288		Cloak and tunic 17 talents. Shoes (?) 1200 dr.
	PRG. v. 61	Heracleopolis	Military adaeratio for cloaks: 6 chlamydes 200,000,000 den. 7 chlamydes 200,000,000 den. 10 chlamydes 4,700,000 den. 15 chlamydes 17 solidi 1 chlamys and 1 peplum 10,000,000 den. 14 chlamydes and 13 pepla. 1,200,000,000 den.
	P. Fouad 74 *		1 second hand Antioch embroidered tunic (στιχάριον) ca. 10 carats.
IV/V	PER. NN. 74	Hermopolis	1 Saitic garment 4½ myr. den.
	PSI. 809	Oxyrhynchus	1 garment (ἱματίον βαμ[) 7 s.
V	P. Amh. 144		Woman's cloak 10 artabas of wheat.
	P.O. 1026		Dalmatian cloak 33,750,000 den. Xoitic cloak 30,000,000 den. Kerchief 7,500,000 den. Linen cloth 15,000,000 den. Linen cloth 1 solidus.
VI	SPP. xx. 182		Embroidered tunic (στιχ.) 1⅓ c.,
	P.O. 2053		60 folles embr. tunic 32 c.
	P.O. 2058		2 embroidered tunics (στιχ.) 16 c. 1 napkin (μαφόριον) 8 c.
	P. Cairo 67287	Aphrodito	20 c. for unspecified quantity of wool.
621	P.O. 1921		Pair of linen sheets (?) 3 c. and 6 c. per pair.
621	PER. 142	Hermopolis	Contract for linen valued at 36 solidi.
VI/VII	P. Iand. 17		Dyeing a woolen garment 1 c.
	Kl. Form. 83	Fayum	Five solidi (ὑπαροί) for 1 caracalla, 4 men's embroidered tunics (στιχ), 5 shirts, etc.

* This probably belongs to the late fifth century.

VII	P. Goth. 19		1 caracallon 20 c.
	P.O. 2054		4 linen towels (*σάβανα*) 45 c.
			4 linen sheets (*σινδώνια*) 60 c.
			2 linen towels (*σάβανα ουγ.*) 28 c.
			2 linen towels embroidered 36 c.
	P. Bad. 95		Linen (for burial?) 4 c.
			Allowance for clothing of household slaves per year, 8 solidi.

BASKETS (*σφυρίδια*)

314	PER. E. 2000	Hermopolis	6 large size 300 dr. each.
			6 small size 200 dr. each.
IV	PSI. 959	Antinoe	10 for 2000 T. (ca. 2 c.)
	P.O. 2058		55 for 5 sol.
VII	P. Baden 95	Hermopolis	4 for half a carat.

DYES AND DRUGS

Late III	Gr. Pap. ii. 77	Oasis	Funeral expenses 340 dr.
			Embalming material 60 dr.
III	P.O. 2144		1 oz. rock parsley 800 dr.
			1 cake of frankincense 80 dr.
IV	SPP. xx. 96		1 lb. *σάλκαθον* 4 T.
V/VI	PSI. 291		1 lb. (?) gum 3000 T.
			Scammony 50 den.
VI	P.O. 2053		11 oz. 1 gr. of incense 6 sol. less ½ c.
			Ointment (*χρίσμα*) 8 c.
			Styrax 6 c.

Quantities unspecified: Alum, 14,000, and 120,000 dr. (P.O. 1288); Salve for race horses, 1 sol. less 4 c. (P.O. 145); purple, 3 talents, 900 denarii (21,600 dr.) (P. Thead. 34); rent of purple (?) 300 myriads of denarii (BGU. 951).

JARS

IV	P. Oslo 146	Oxyrhynchus	60 at 1200 dr. each.
ca. 557	P.O. 1911		400 for 1 sol. less 4 c.
			100 for 1½ artabas 7 choenices of wheat.
ca. 555	P.O. 1913		400 for 1 sol. less 4½ c.
			100 for ⅓ artaba 4 choenices of wheat.
VI	PSI. 474	Cynopolis	2400 for 6 sol.

VII	P. Baden 95	Hermopolis	4824 for 11 sol. less 66 c. 580 for 1 sol. less 2 c. 4345 for 10 sol. less 54 c. 218 for 14 sol. less 76 c. ? 200 for 12 c.
615	BGU. 368	Fayum	Rent of jars for vintage 1 sol.

The price paid in PSI. 959 is 11,800 talents (ca. 12 carats of gold) but the quantity is lost. The rental of 2 potteries (*κουφοκεραμίων*) in P.O. 1917 (collection of arrears) is given as 4 sol. In P. Cairo 67110, A. D. 565, the rental is 2400 jars a year.

PARTS OF IRRIGATING MACHINERY

IV	P. Lond. 125		Part rent of *ὄργανον* for 9th indiction 7 artabas wheat. Rent of *ὄργανον* for 10th indiction 10 artabas wheat.
557	P.O. 1911		1 axon 1 sol. less 5 c.
VI	PSI. 88		Rent of *ὄργανον* 7 artabas wheat.
VI	P.O. 2027		" 13½ c.
VII	P. Baden 95	Hermopolis	" 12 c. " and *κόκλας* 13 c. (?) (Probably rent).
			1 *κύκλας* 1 sol. 3 c. 1 *κύκλας* 1½ sol. less 9 c. 1 *κύκλας* 2 sol. less 12 c. 1 *κύκλας* 5½ artabas of wheat and 2¾ c. *ἔχυσις* (outlet) 4½ c., 6 c., 12 c. 2 *τύμπανα* 3½ sol. less 21 c. (31½ c. each). 1 *τύμπανον* 1½ sol. less 10 c. 1 small *τύμπανον* 1¼ sol. less 10 c. Price of *ὄργανον* 12 sol. less 72 c. Rent of *κύκλας* 8 c. Rent of two *κύκλαδες* 1 s. less 6 c.

For the *σκυτάλαι* used in repairing the machinery see prices of wood. The *ὄργανον* is presumably the sakiyeh, but sometimes the word is used, as is *μηχανή*, for the farm itself. The *τύμπανον*, or drum is often impossible to distinguish from the column drum, but in P. Baden it is clearly part of the irrigating machinery. Possibly the *κύκλας* is the Archimedes screw often used today for raising water for a small elevation.

PARTS OF MILLS

555	P.O. 1913	Stones for pressing lachanus seed for oil 14¾ c.
VII	P. Baden 95	σχυνικίτ( ) for olive press 6 c. and 9 c.

For φόροι of presses and bakeries see p. 204. σχυνικίτας is probably for σχοινικίτης, or some heavy hemp rope or device to which rope was attached used in the mill.

CHARCOAL

324	P.O. 1430	100 lbs. of charcoal and 3 bundles of tow. 33,000 dr.

HEMP

IV	P.O. 1288	5 lbs. 8,000 dr.
	SPP. xx. 96	1 lb. 24,000 dr.
VII	CPR. Coptic 5	55 bundles (25 lbs. each) 1 sol.

In A. D. 381 a loan of five solidi carried the provision that 5 bundles of hemp each weighing 5 minae should be paid monthly as interest. At the usual rate of interest (1% per month) 25 minae (ca. 24 lbs.) would be worth 1⅕ c. or approximately 640 lbs. per solidus (SPP. xx. 103).

PITCH

390	P.O. 1753	6 jars dry pitch at 300 myriads denarii each.
IV/V	PSI. 809	100 lbs. 40 sol. ?

CHAFF, HAY, REEDS

295	P.O. 43	Allowances of chaff to army: camels 20 lbs. per day each; various officials receive allowances (fuel) for undetermined periods.
III/IV	PSI. 810	300 bundles of hay 36 dr.
340	BGU. 21	1800 lbs. of chaff 144 T.
ca. 557	P.O. 1911	100 bundles of reeds 2 sol. less 9 c.
592	P. Amh. 150	50 loads of dry hay 2 sol.
VI	P.O. 1932	2½ arouras of hay 3 sol. less 12 c.
	P.O. 1920	1 aroura of hay 1 sol.
639/40	P. Lond. 113.10	30 bundles of dry hay 1 sol. 11½ c.
VII	P. Flor. 336	5 arouras of hay 2½ sol.

Unspecified quantities of reeds for vineyard in P. Baden 95; hay for stables 20 sol. (P. Lond. 1320); hay for farm 4 sol. (Kl. Form. 120).

LEATHER, HIDES

ca. 346	P. Lond. 247	4 Babylonian hides 120 myriads.
362	P.O. 1057	1 hide 750 myriads denarii.
VI	P.O. 2037	1 hide 6¼ c.
		Goat skins 12½ c.
639/40	P. Lond. 113.10	1 hide 8 c.
Byz.	SB. 7656	14 hides 1 sol.

PAPER AND PARCHMENT

IV	P.O. 1729	Day book (*διάριον*) 120 myriads.
	SPP. xx. 81	20,000 dr. per roll (?) of paper.
	PSI. 959	200 T. per roll (?) of paper.
IV/V	P.O. 2156	25 quaternions of parchment 14 T.

Unspecified quantities P.O. 1913; P. Cairo 67058.

JEWELRY

484	PSI. 183	Ornament set with jacinth and mother of pearl 13 sol.
		δεξάρια ζυγήν 4 sol.
		Chain necklace (*χαλαστόν*) 20 sol.
V	P.O. 1289	20 necklets 450 myriads of denarii.
549	P. Lond. 1720	Earrings pledged for 8 sol.
579	P.O. 2002 V	3 gold chaplets 1 sol. 4 c.
		Bracelet 1 sol.
VI	P.O. 2058	Gold ring 8 c.
		Gold crown 1 sol.
		Pair of gold ear pendants 2 sol.

A silver service purchased for 2160 s. by bishop (John the Almoner c. 27).

Emeralds sold for 500 solidi St. Antony (Budge's tr. p. 129).

WOOL AND COTTON

IV	P.O. 2154	1 mina of wool 3500 dr.
VI/VII	CPR. Coptic 5	25 lbs. of linen 1 solidus.
	CPR. Coptic 6	23 lbs. of cotton (?) 1 solidus.

Unspecified quantities of wool: P. Lond. 113.10; Gr. Pap. ii. 103.

MISCELLANEOUS COMMODITIES

298	P.O. 1705	Loom 13,000 dr.
Late III	P.O. 2144	Wax 100 dr. per mina.
		Milt 100 dr. per mina.
		Carpenter glue 600 dr. per mina.

IV	PSI. 959	Chain 4,500 T. (about 4⅓ c.).
350	P. Lond. 429	1 chair (*κορδίκιον*) 5 T.
350	P. Lond. 427	7 lbs. of hair (?) 30 T.
352	P.O. 1431	1 carpet 1500 T.
V	P.O. 1289	4 ladles 470 myriads denarii.
		3 curved knives 120 myriads denarii.
		5 pairs of scissors 250 myriads denarii.
		2 pairs large scissors 150 myriads denarii.
		1 knife 30 myriads denarii.
		24 cups 1200 myriads denarii.
		13 large cups 1054 myriads denarii.
579	P.O. 2052	10 sacks (*θάλλια*) 1 sol. less 5 c.
VI	P.O. 1920	53 centenaria of wood * 1½ sol.
	P.O. 2058	2 beds 12 c.
		1 rug 8 c.
		1 alabaster table 18 c.
		2 mattresses and 1 *ῥώχνιον* 2 sol.
		3 hair mattresses and 4 sacks (*θάλλια*) 1 sol.
		2 baskets filled with knives 1 sol.
	P. Cairo 67, 330	Wicker boat (*πάκτων*) 5 c.
VI	Kl. Form. 993	1 key 13 c.
VI/VII	P. Lond. 1905	1 knife 1 c.
		1 pillow (*κύβιτον*) 3¾ c.
		1 copper vessel 3 c.
621	P.O. 1921	130 mirrors 3 folles each.

OBJECTS OF UNCERTAIN MEANING

III/IV	PSI. 837	*ἀργὸν δεσμίδιον* 4000 dr. (white bandage).
		τὸ Μενδήσιον λιτριν 5000 dr. (probably *νίτρον*) used for soap.
		τὸ χωρικὸν (*νίτρον*?) 460 dr.
330	P. Lond. 977	*ἀνδ. . οδυ[ ] πατρικίου* 250 myr. den. (*ἀνδραπόδου*?)
340	BGU. 21	*σιλ( ) σπαθ( )* 15 T. each.
IV	P. Lond. 1259 *	*τιμὴ ολοκ( )* 11 T.
IV/V	Kl. Form. 1023	221 *μοχλ( ) καλ( )* (apparently for work on canal) 600 (plus) myriads of denarii.
V/VI	SPP. xx. 211	75 *αμφωμ( )* 21 c. (*ἄμφωτις*).
		2 *σκιωρρ( )* 37 c.
		πτελεινός 12 c. (Elm wood?).
Byz.	SB. 5310	4 *καλαμμ( )* 100 myriads den. (*κάλαμοι*?).
		οζ( ) 1500 myriads den.
	BGU. 403	*τονάχιον* 6 sol.

The price of an *ἀγονάχιον* as 36 s. (John the Almoner, c. 21).

* Wood in unspecified quantities: SB. 5303, Kl. Form. 1138.

* Preisigke restores in WB as *ὁλοκ(οττινός)* but the other prices in the document seem out of line with this value. Possibly *ὄροβος*.

BUILDING AND BUILDING MATERIAL

295	PSI. 712	Oxyrhynchus	Making 40,000 baked brick 8000 dr.
306	P.O. 1104		Estimate of repairs to public bath 50 T. 450 denarii.
316	P.O. 896		Painting of public bath 10,000 dr.
316	P.O. 84		100 lbs. of iron 6 talents.
338	P.O. 85		6 lbs. of bronze 1000 den.
IV	SB. 5099	Taphis Stoa	2 million talents.
	P. Lond. 1259		7 large beams 55 talents.
	SPP. xx. 75	Hermopolis	Nails (quantity unspecified) 20,000 dr.
	SPP. xx. 230		8 lbs. of nails 750 myr. den. per lb.
			Beams (quantity unspecified) 600 myr. den.
			Brick baked (quantity unspecified) 2400 myr. den.
			Brick unbaked (quantity unspecified) 1500 myr. den.
			Wood (quantity unspecified) 4500 myr. den.
IV/V	Kl. Form. 1023		1000 brick 450 myr. den.
ca. 557	P.O. 1911		150 large stones for building 1 sol. less 4½ c.
ca. 576	P.O. 2195		Laying 200,000 brick 4 sol. less 14 c. and 15 artabas of wheat.
V/VI	SPP. xx. 211		Wood for door 8 c.
			Wood for conopion (bed tester) 4 c.
			for bath 1 sol.
			Abacus 42¼ c.
VI	PSI. 88	Oxyrhynchus	Building wall 1 sol.
			1600 brick 1 sol.
	P.O. 2058		40 irons for door 4 sol.
	SB. 1983		Women's quarters (γυναικεών) 60 myr. den.
	SPP. x. 259	Fayum	21,000 baked brick 3½ sol.
			Plaster (γυψίον) 5½ sol.
			Pitch (κώνιον) 5 sol.
621	P.O. 1921		Making a key 1 carat.
625	SPP. xx. 209 (SB. 5270)	Fayum	30,000 unbaked brick 1 sol. less 7¾ c.
VI/VII	SPP. xx. 244		1200 πλινθάρια 18 folles.
			11 small beams 14 λιτά.
			1 βάτος 3 λιτά.
			λακινια (= lacinia, cloak?) 2 λιτά.
VII	P. Bad. 95	Hermopolis	26 σκύταλα and unspecified quantity of wood.
Byz.	SB. 5300		42 drums (τύμπανα) and
			3 capitals (πιλάρια) 22½ silver (units).
			26 drums 13 silver (units).

2 stones (ἀγόνες) 600 and 750 myr. den. each.
1 capital (πιλάριον) 75 myr. den.*
cutting stone 300 myr. den.

WAGES (MONEY)

III P. Gen. 73. Fayum. 28 dr. per day and keep.
295 PSI. 712. Oxyrhynchus. 8,000 dr. as pay for making 40,000 bricks.
297 SB. 7676. Caranis. 200 dr. per day and keep for work on Trajan's canal.
299 PSI. 873. Theadelphia. 240 dr. per day for liturgy at Babylo.
301 PSI. 1037. Oxyrhynchus. 400 dr. per day for rhabduchus.
308 Gr. Pap. ii. 75. Oasis. 20 T. of Augustan silver paid in nummi, food and clothing for a fourth part of nurse's service.
309 P.O. 1499. 2,000 dr. per m. for bath attendant (παραχύτης).
314 PER. E. 2000. Hermopolis. 400 dr. per day for cutting weeds, clearing ground, dyking, and building house; 500 dr. per day for irrigation and builders; 650 dr. per day for labor.
325 P.O. 1626. 2,000 dr. per day for rhabduchus.
377 PSI. 287. Oxyrhynchus. 300,000 den. daily wage of apprentice to ταρσικάριος.
IV P. Goth. 7. Coptos. Workers on mosaic agree to work for 6 dr. 6 ob. per cubit instead of 8 dr. which they had been paid.**
IV SPP. 85. Hermopolis. Monthly wage of secretary, logographer, pedagogue, mule-driver, and pensioner of estate 3000 dr.; groom 3,500 dr.
SPP. 75. Hermopolis. Monthly wage of aide and guard 60 T.; weaver 136 T.; other workmen employed for indefinite number of months.
P. Rend. Harr. 97. Mimist at festival 37,000 dr.
IV/V PSI. 809. Contract work: carpenter 1050 myr. den.; plasterer 1500 myr. den.
V/VI SPP. xx. 119. Fayum. Annual wages of messenger 2 s. less 10 c. So also in Kl. Form. 8, 14, 90, 92; reduced to 2 s. less 15 c. in Kl. Form. 71, 91,; 14 s. per year in PRG. iii. 47 (VI) and 15 s. in P.O. 1864 (VII), see also PSI. 953 where allowance for messengers on estate is 12 s. less 48 c.
SPP. xx. 195 (Kl. Form. 970). Half-yearly salary of notarius 20 s. less 100 c.
P.O. 2006. Bath attendant 1 s. yearly.
A.D. 535 P.O. 1893. Shipwrights receive 1 s., 2 art. bread, 20 lbs. meat, 6 pints of oil, and 6 double measures of wine for 45 days' labor.
547 P. Cairo 67128. Aphrodito. Planting flax on 1 ar. 1 s. less 2 c.

* This seems to yield the equation that 150 myr. den. equals 1 silver (unit).
** This should be dated in the third century.

556 P.O. 140. Superintendent of stable receives 4½ s. as earnest money, 80 art. wheat for himself and grooms, 9 s. for barley and lachanus, ½ s. for green fodder, and 80 cnidia of wine.

549/564 P. Goth. 9. Oxyrhynchus. Work in dye-plant and carpet factory while also serving as tabularius of postal service 4 s. 5 c.

ca. 555 P.O. 1913. Stablemen of postal service 24 s. less 64 c. and 270 art. wheat (number not specified); mason 7 s. less 35 c. (in two instalments); Count Menas 30 s., 90 art. wheat and 90 art. barley as yearly wage.

ca. 557 P.O. 1911. Three camel-drivers allowed 4½ s. less 11¼ c. and 48 art. wheat yearly. Five river-men 1 s. less 4½ c. monthly, two chartularii of whom one receives 10 s. less 5 c. and 40 art. of wheat yearly, the other 16 s. less 8 c. and 75 art. wheat, foremen 3½ s., 1½ s. less 5¾ c. and 1⅓ s. less 4¾ c. each yearly.

567 P. Lond. 1708. Antinoe. Allowance for yearly maintenance: 1 s. for oil, 1 s. for household expenses, 44 art. wheat and 5 art. wheat and 7 c. yearly for unknown purpose.

569 P. Strass. 40. Antinoe. See contracts for *παραμονή* (p. 135).

570 P. Cairo 67151. Antinoe. Physician 60 s. per year.

ca. 576 P.O. 2195. Pronoetes on estate 2 s. less 5 c. and 24 art. wheat yearly: foreman 2 s. less 7 c. yearly (So also in P.O. 1912 probably contemporary. Same allowance of wheat in P.O. 1910).

580 P.O. 2008. Rent collector 4 s. less 16 c. yearly.

580 SPP. xx. 217. Ox-driver 5½ s. less 38¾ c. yearly from which he provides stabling, fodder, stable-boys, rents and other expenses.

VI P.O. 2007. Two brick-layers acknowledged receipt of 3 art. wh. and 1 s. less 4½ c. yearly for 4 years.

P. Cairo 67057. Antaeopolis. Physician 25 s. yearly (?).

P. Cairo 67314. Antinoopolis. Yearly allowance provided by legacy 60 c.

P. Cairo 67330. Aphrodito. Aide 4 s. 9 c. yearly.

Kl. Form. 2. Fayum. Aide of riparii 2 s. less 10 c. yearly.
6. " Workman 1 s. less x c. yearly.
9. " Aide of riparii 20 c. for three months.
10. " Workman 1 s. yearly.
74. " Workman 1 s. less 4 c. yearly.
84. " Janitor 20 c. yearly wage (?).
105. " Workman 1 s. *ὑνπ.* yearly.
164 (SPP. xx. 198). Cook 1½ s. (*ὑνπ.*) 7½ months.
350. Work on irrigation (?) 1 s. (*ὑνπ.*) yearly.
1131. Fourteen grooms 3 s. 1 c.

P.O. 2027.. Pronoetes 2 s. less 8 c. yearly.

610 P.O. 138. Contract to care for stable of Apion 72 s. yearly.

612 P.O. 2045. Armed messengers each ⅓ s. monthly.

612 P. Amh. 157. Expenses of slave going from Oxyrhynchus to

Alexandria and return 2 s. (cf. *ibid.* 158 where the allowance for the same expense is $\frac{2}{3}$ s.).

612 P.O. 151 (Kl. Form. 284). Expenses of boatmen from Oxyrhynchus to Alexandria and return 3 s. less 12 c.

618 P.O. 152 (Kl. Form. 285). Two starters in races $10\frac{5}{8}$ c. monthly.

621 P.O. 1921. Expenses of slaves going from Oxyrhynchus to Fayum 120 c. and 3 c. per month.

VI/VII Kl. Form. 1096. Expenses of letter carrier and horse from Fayum (?) to Alexandria and return (15 days) 1 s. less $5\frac{1}{4}$ c.

VI/VII SPP. xx. 244. Two men per day 6 λιτά.
Two men per day 5 λιτά 2 folles.
Three men per day 7 λιτά 13 folles.
Four men per day 10 λιτά 4 folles.

VII P.O. 2009. Secretary 4 s. less 16 c. yearly.

PER. 146. Donkey driver $\frac{1}{2}$ s. yearly.

SB. 4909 (Kl. Form. 1070). 57 men working 8 days 1847 myr. denarii.

BGU. 310. Fayum. $1\frac{1}{3}$ s. advance of wages for a year (probably loan in return for services.

Byz. SB. 4739. Fayum. 1 s. less $7\frac{3}{4}$ c. with allowance of food as wages for year.

Literary evidence for wages is slight. Fee of courtesan is given as 1 s. (Budge, Life of St. Anthony, p. 186). Leontius (Life of John the Almoner) gives the yearly wage of a dispenser of hot water at the Alexandrian baths as 3 s. (c. 1), the daily wage of a laborer as 1 c. (c. 36) and the daily distribution to the poor of five folles which was sufficient to pay the fee for the baths or to provide a relish of vegetables (c. 38). Documents which do not specify the nature of the work or the term have generally been omitted as of no economic value, but the following may be cited because of evidence of inflation or for other reasons. Fourth century: PSI. 888 (400 dr. to pruner possibly for duration of season), PSI. 959 (5,800 T. for assistant to overseer of annona probably yearly salary), P. Cairo Pr. 45 (40 T. for guard, cf. SPP. xx. 75), P.O. 1730 (800 myriads to donkey drivers). P.O. 1047 (36,000 den. as stipendium to soldiers, paid on Sept. 1, probably for a term of four months. Important as latest evidence for pay of soldiers in money instead of in kind), PER. 37 (24 T. for aide and 130 T. for oilworkers), PER. NN. 94 (240 T. for four men).

Fourth or fifth century: PSI. 830 (5,000 T. allowed for living expenses probably for a year).

Fifth or sixth century: PSI. 891 (payments to scholasticus, etc. probably in the nature of fees or perquisites, see p. 289), Kl. Form. 989 (10 s. less 40 c. for village guards). A. D. 545: P. Princeton 154 (Advance of 1 s. to dung carrier, probably in nature of loan for services to be rendered).

Sixth century: PSI. 953 (Apparently part of Apion's accounts with payments to Goths, bucellarii and messengers), Kl. Form. 11 (1 s. ῥνπ.),

12 (3½ s.), 324 (1 s. part pay for donkey drivers), 388 (2 s. less 2 c. with an allowance of 9 art. wheat for 12 masons and builder).

Seventh century: P.O. 1862 (6 s. as wages of grooms and transportation of camels), Gr. Pap. I. 68 (1 s. for dyer).

See also Fees and Perquisites for wages of officials. Contracts of παραμονή and apprenticeship are found on p. 135.

ALLOWANCES IN KIND

A.D. 293 P.O. 2143. 12 art. wheat each for mason and helper.

295 PSI. 472. Oxyrhynchus. 3 art. wheat, 1½ art. beans, 3 ceramia of sour wine and 12 sestarii of raphanus oil to masons for undetermined period.

338 P. Leip. 97 and P. Lond. 125. Hermonthis. 2-4 art. wheat every two months to workmen on estate. Stable animals allowed ⅓ art. barley per month. Slave given 1 art. wheat for making a declamation. 9½ art. wheat to workman for 2 months.

346 P. Lond. 409. Fayum. 10 art. lachanus seed granted yearly to orphan by the state.

362 PSI. 784. Painter allowed 1 art. wheat and 2 cnidia of wine for painting portrait.

IV PRG. v. 60. Hermopolis. Half-yearly allowances: 22 art. wheat to donkey drivers; 10 to physician; 8 to janitor; 4 to veterinarian; 5 to cobbler; 16 to goatherd; 8 to soap-handler; 4 to sack-maker; 20 to clerk.

SPP. xx. 108. Fayum. 24 artabas of wheat and 6 of barley a year to dung carrier.

488 P.O. 1888. 4 lbs. of bread and 1 litre of wine daily as soldier's rations.

499 P.O. 994. 12 artabas of wheat yearly allowance of monk.

IV/V PSI. 217. 16 artabas of wheat yearly allowance of capsarius.

V P. Amh. 155. 15, 20, 22 artabas of wheat yearly allowance of farmers. 7, 15, 19 artabas of wheat yearly allowance of ox-drivers.

V/VI SB. 4640-9. Upper Egypt. 1 lb. of bread and half a sestarius of wine paid to workers daily at vintage. Many payments undetermined.

551 P.O. 2013-4. 1 lb. of pork per month as soldier's ration.

ca. 555 P.O. 1913. 50 and 100 artabas of wheat allowed to two scholastici; 10 to field guards; 10 to smith; 5½ artabas 6 choenices to potter and to carpenter.

570 P. Cairo 67151. Antinoe. Yearly allowance for a son, 19 artabas of wheat, 4 of barley, 12 sestarii and 20 angia of wine (Will).

586 P.O. 2196. Rations for 8 days: 150 lbs. bread, 17 dipla of wine, 50 lbs. of meat per day. Number unspecified (see Military Annona).

VI P.O. 1948. 40 artabas of wheat for aide (βοηθός) yearly? 24 artabas of wheat for secretary (yearly?).

Kl. Form. 960. Memphis. 6 artabas of wheat for aide, 4 months.

VI Kl. Form. 980. Memphis. $6\frac{2}{3}$ art. wheat for bath attendant and $7\frac{1}{2}$ art. for περιχύτης probably as allowance for 4 months.

VI/VII P.O. 1910. 24 art. wheat for annual allowance of pronoetes (probably with money payment in addition as in P.O. 1912, 2195).

P.O. 2046-7, 2050. For Military Annona see p. 218.

VII P. Baden 95. Hermopolis. Pension for Ama Maria 10 art. wheat and 12 sestarii oil yearly. Members of household allowed wheat and barley and provision for clothing.

Kl. Form. 978. Fayum. Annonae for twelve messengers: 4 art. wheat, 4 lbs. of meat $1\frac{1}{3}$ cnidia and 12 sestarii of wine and 12 sestarii of olive oil.

Kl. Form. 1106. Janitors allowed 12 art. wheat yearly.

Wadi Sarga Coptic 161. Yearly allowance of carpenter: 25 art. wheat, 12 laks of wine, 4 art. of barley, x art. of fodder, 2 jars of wine, cloak, sackcloth garment, and pair of sandals.

The following documents give allowances for undetermined periods: P. Iand. 43 (A.D. 525) $2\frac{1}{2}$ art. to woman fuller: P. Princeton 96 (A.D. 551/66). Payments of 6-12 art. wheat: Kl. Form. 304, 1058, 1079 (payments to camel drivers), *ibid.* 1065, 1067 (15 and 20 art. to unspecified persons): P.O. 1910 (VI/VII) 9 art. wheat for 12 masons and builder: P.O. 1848 (VI/VII) Bishop requests annona for a poor man with large family.

10. SALE OF HOUSES

ANTINOE

430 SB. 7996. Third share of one-story house. 2 sol.

454 SPP. i. p. 7. Half share of house, with cistern, underground chamber, court and equipment. 9 sol.

APOLLINOPOLIS

581 Gr. Pap. i. 60. Property left by will including land and a share of house, court, etc. Price not above 1 sol.

618 SB. 5112. South part of dining hall and half the open space (ἄηρ). $1\frac{2}{3}$ sol.

613-40 SB. 5114. Third share of home belonging to monastery. $1\frac{1}{3}$ sol.

VII/ SB. 5113. Frag. sale of house property.* $4\frac{2}{3}$ sol.

* Witnesses are found in all the contracts of sale at Apollonopolis except this.

ARSINOITE NOME

305 P. Thead. 2. House formerly a fuller's establishment. 9 T.
306 P. Thead. 1. House with equipment. 10 T.
512 SB. 5174. Monastic establishment 8 sol. and 1200 myr. of great silver.
513 SB. 5175. Monastic establishment. 10 sol.

Fragmentary sales: P. Strass. 9 (Arsinoe, A. D. 352); P. Flor. 66 (Arsinoe, A. D. 398).

BABYLO

VI/ P. Lond. 1735. Fifth part of house. 3 sol.

HERMONTHIS

P. Lond. 991. Complete house. 5 sol.

HERMOPOLIS

341 P. Goodspeed 13. Open lot (ψιλὸς τόπος) with ruins of a house and cistern. 100 T.

OXYRHYNCHUS

322 PSI. 771. House guaranteed free of all public, civic, and senatorial liturgies. Price lost.
354 PSI. 1077. οἰκόπεδα Frag.

SYENE

573 P. Lond. 1722. House with 2 cellae in basement, 2 dining rooms on second floor with terrace, 2 others on third floor unroofed and with terrace. 18 sol.
578/82 P. Lond. 1724. House with small cella on first floor, dining room and small chamber (δῶμα), a third share of another chamber and a third of all the equipment including porch, pylon, terrace and half share of bake-house. 10 sol.
585 P. Mun. 9. Half share of dining room in a 4-story house, share of chamber in fourth story, share of a house inherited from his father, share of a small house inherited partly from mother and partly from father, and a half share of another house purchased by vendor. 10 sol.
585 P. Lond. 1728. Transfer of half share of house to sister and brother-in-law on condition that the latter assume the entire obligation for maintenance of his mother.
586 P. Mun. 11. Half share of home including half share of porch, pylon, terrace, sun rooms, and bake shop. 5 sol. (5 witnesses).
590 P. Mun. 12. Half share of three story house, cellae in first floor, dining room in second floor, the under terrace of first floor,

dining room in third floor, open air chamber, and large room, with equipment. Also half of porch, pylon, terrace, and bake shop. 5 sol.

594 P. Mun. 13. Half share of court of house in ruins. $1\frac{1}{3}$ sol.

594 P. Lond. 1733. Half share of dining room on second story, fourth of open air apartment above the accubitum with half of porch, pylon, terrace, passage way and bake shop. 3 sol.

VI/ P. Lond. 1734. Dining room. 3 sol.

P. Mun. 15. Cella and court. 2 sol.

P. Mun. 16. Court. 2 sol.

THINIS (IN THE THEBAID)

592 P. Paris 21 b. House in ruins, a small cella and lot for 3 sol. less 1 c.

599 P. Paris 21 c. d. Third share of 3-story building with underground chambers. 2 sol. less *X* carats.

616 P. Paris 21. Entire house. 13 c.

UNKNOWN PROVENANCE

V/ P. Princ. 84. House. 15 sol.

VI/ P. Goth. 22. House and court. Fragmentary.

LEASES OF HOUSES

ANTINOE

555 P. Cairo 67302. Part of 2-story house. 12 c. yearly.

567 P. Lond. 1708. House. 2 sol. yearly.
Small house. 12 sol. yearly.
House. $1\frac{1}{2}$ sol. per year for 4 years (6 sol. 6 c.).

570 P. Cairo 67156. Fourth part of house. 1 sol. less 6 car. yearly.

VI/ P. Lond. 1715. House with tenancy at will of lessor. 300 myriads monthly.

Fragmentary: PRG. v. 32 (A. D. 570), half a house; P. Berol. Zilliacus 6 (ca. 550), two-thirds share of house including share in well and sun room.

APHRODITO

532 P. Lond. 1691. Place (χώρημα) used as court (ἔπαυλις). At will of lessor. 3000 T. monthly.

574 P. Cairo 67096. A fragmentary lease of room in second floor with access to cistern and all rights; Cairo 67111 (585) is a lease of court belonging to church.

585 P. Cairo 67111. Lease of ἔπαυλις from monastery.

ARSINOITE NOME

553 BGU. 364. Small τόπος. 1 sol. less 7 c. yearly and gratuity. Term at will of lessor.

V/VI Kl. Form. 288. House belonging to church 3 c.

VI/ Kl. Form. 261. 2 cellae 8 c.
Kl. Form. 793. Court (ἔπαυλις) 1½ c. yearly.
P. Lond. 1136 a. A τόπος for ⅓ s. yearly.

633 P. Lond. 1136 a. Two (τόποι), one for ⅓ s. yearly, the other for 5/12 s.

618 SB. 5269 (SPP. xx. 220). Open room on second floor. 14 c. yearly.

VI/VII SB. 4493. House. 15 c. yearly.
SB. 4491. House. 1 sol. yearly.
Kl. Form. 239. One-room house. 3 c. yearly.
Kl. Form. 265. Two τόποι. ½ sol. less 3½ c. yearly.
Kl. Form. 797. τόπος. 3 c. yearly.
Kl. Form. 875. House and court. 6¼ c. yearly.
Kl. Form. 876. House. 2 c. yearly.

Byz. SB. 4706. τόπος. 1900 great myriads yearly.
BGU. 47. τόπος. 8½ c.
BGU. 173. τόπος. 3½ c.
BGU. 841. House. 8 c.

Fragmentary leases from the Arsinoite nome: BGU. 606 (306) Cow stable with two cellae for storing hay; P. Lond. 113. 5 a. (498) courtyard; P. Lond. 113. 5 b. (543) lease of cella by fish dealers; BGU. 305 (566), cella and κολύβη; BGU. 306 (566) house; PSI. 1058 (5/6 century) gold worker's shop; P. Lond. 871 (6 cent.) dining room at will of lessor; SB. 4494, Lot at will of lessor; SB. 4697, τόπος in 2nd floor and dining room. Payments of rent which do not indicate nature of property: Kl. Form. 264, 266, 269, 270, 792, 794-6, 801-3, 840, 845, 872, 881, BGU. 900. Many of the receipts are given by church officials.

HERACLEOPOLIS

323 P. Gen. 10. Fourth of 3 story house with προνοήσιον for 2 years at 1200 dr. per year.

398 BGU. 940. House and equipment for one year at 1800 myriads.

527-65 PER. NN. 117. Room for 1000 nummi.

VII/VIII Kl. Form. 790. Stable 6 months for 6 car.

Fragmentary: P. Flor. (578), part of a house; SB. 5295 (Byz.) part of house with cupboard for bread. Kl. Form. 264 gives no indication of kind of property.

HERMOPOLIS

377 P. Leipz. 17. τόπος in 2nd story for 2 years. 2,500 T. yearly.
397 P. Giess. 52. Cella of house. 1800 myriads per year.
IV/V Kl. Form. 758. House. 1200 myriads of silver part of rent.
417 P. Berol. Zilliacus 5. 2 τόποι (rooms) in upper story. 11,000 T. per year.
471 P. Baden 91. Two-thirds of house. 100 T. yearly.
V/ P. Giess. 119. Part of house and equipment. 2 T. per month.
Kl. Form. 763. Shop in market. 2550 myriads for half year.
V/VI P. Lond. 1023. Half of chamber (κοιτών) in 2nd story, cella in basement, share of court, pylon, and cistern. Term at will of lessor. 2800 T. yearly.
505 P. Flor. 73. Half of house belonging to church. 3 c. yearly.
527 P. Moeller 3. Chamber (κοιτών) on 1st floor 3½ c. yearly.
540 SB. 7340. Chamber (κοιτών). 3½ c. yearly.
550 P. Strass. 4. Three fourths of house. 21 c. monthly.
VI/ K. Form. 313. Half a house. 7½ c. yearly.
P. Lond. 1768. Two exedrae with rights to cistern, court, a room (δῶμα) and a chamber (καμάρα) in basement. 6 c. yearly.
VI/VII P. Flor. 13. Half of exedra in 2nd storey, half of chamber (καμάρα), and right to share cistern, court, and equipment. 2 c. yearly.
VII/ Kl. Form. 411. Single-roomed house. 8 c.
Following are fragmentary: P. Flor. 103 (4th cent.), stable, rent paid in silver coinage; P. Lond. 1872 (548), term at will of lessor; P. Baden 30 (577), room in 2nd storey; P. Lond. 1005 (598), stable; P. Lond. 1044 (6th century) is a usufruct of house and other property for the benefit of mother for life (property valued at 190 solidi?); P. Lond. 1874-5 are leases for 10 and one year respectively; P. Lond. 1877 is a lease of brothel (μαυλιστήριον) for two thirds share of the profits; P. Flor. 306 (635), sleeping chamber; Kl. Form. 268 refers to a small house rented by the church. Kl. Form. 267, 312 give no indication of nature of property.

OXYRHYNCHUS

III/IV SB. 7444. Part of house for 260 dr. yearly (?)
306 Aegyptus xxi (1941), 291. House and sun porch. 3 years, 2400 dr. a year.
345 P. Rend. Harr. 82. House. 4 years, 90 talents yearly (paid in advance).
351 PSI. 707. Half of house. 2 years, 150 T. yearly.
360 P.O. 1695. Part of house. 1 year, 6000 T.
360 PSI. 467. τόπος. 1 year, 800 T.
382 SB. 7445. House. 14,500 denarii yearly (?)

IV/ P.O. 1280. Share of psycter of camel shed. 1000 myriads of silver yearly.
430 P.O. 1957. Two dining rooms and sunparlor. 12 c. yearly.
444 P.O. 1037. Exedra. 24,000,000 dr. yearly (?) Term at will of lessor.
449 P.O. 1129. Two dining rooms (or τόποι), 1200 myriads yearly.
487 P.O. 1961. τόπος. Term at will of lessor. 1000 myriads yearly.
499 P.O. 1959. Court (ἔπαυλις) and rooms 4 years. 1 sol. yearly.
500 P.O. 1962. Small house. 8 c. paid half yearly.
ca. 500 P.O. 1963. House. 18 c. yearly.
505 P.O. 1966. Work shop with two cellae. 1 sol. less 2 c. yearly.
518 P.O. 1964. μονόχωρον below apse. Term at will of lessor. 6 c. yearly.
518 PSI. 466. Exedra. 18 c. yearly.
553 P.O. 1965. Third of house. 1 sol. (private standard) yearly.
566 PSI. 709. House. 2 sol. (private standard) yearly.
568 P.O. 1038. Ground floor. Term at will of lessor. 10 c. yearly.
VI/ PSI. 75. House (church property). 8 c. yearly.
PSI. 81. Small work shop. 6¾ c. yearly.
Fragmentary: PSI. 708 (406), stable with four cellae for 5 years; P.O. 1967 (427), property of catholic church leased to blacksmith; PSI. 175 (462), dining room; P. Baden 172 (547), hay-barn; P.O. 943, bath on estate; P.O. 1875, a request to lease entire house instead of half.

PANOPOLIS

607 SB. 5286. House. Term at will of lessor. 4 c. yearly.

PROVENANCE UNKNOWN

V/ Kl. Form. 763. Shop in market. 2550 myriads for 6 months.
V/VI P. Strass. 15. Court. 13½ c. yearly (?)
VI P. Lond. 1804. Court. 5000 T. yearly.
Kl. Form. 781. Cella in apse. 6 c. yearly.
VII/ SB. 4708. τόπος. 7 c. yearly.
BGU. 680. τόπος. 12 c. yearly.
CPR. Coptic 74. House. ½ c. yearly.
CPR. Coptic 125. Exedra. 3 c. yearly.
Fragmentary: P. Flor. 38 (6th cent.), house; P. Lond. 394 (6/7 cent.), agreement of joint tenancy; SB. 4701 (7th cent.) unknown property for unknown myriads; Kl. Form. 798, Rental on unknown property 11½ c. for half year; Kl. Form. 270, 786-7, 789, 791, 845, 881 give no indication of the nature of the property leased.

MISCELLANEOUS LEASES AND SALES

BAKERIES OR FLOUR MILLS *

508 SPP. xx. 131. Fayum. Loan of 13 solidi advanced to lessees for operational expenses.

508 P.O. 1890. Bakery of monastery is privately owned. Consists of 4 ovens, mills and mortars. Loan of 12 solidi is advanced by lessor to lessee. Annual rent is 3 solidi and 1 loaf of bread as gratuity for janitor. Gratuity of 3 chickens and 30 eggs for owner at festival.

508 SPP. xx. 131. Lease of mill and bakery with appurtenances. Yearly rent apparently 13 s.

VI P. Rein. ii. 108. Oxyrhynchus. Lease of mill and bakery with appurtenances. Daily rent 37 pieces of silver (ἀργυρᾶ).

P.O. 2195. φόρος of two bakeries. 1 sol. (plus).
φόρος of bakery. 26 artabas 13 choenices of wheat.
φόρος of bakery. 1 sol. 20 c.

VI/ P.O. 1912. φόρος of bakery. 55 artabas of wheat.
P.O. 1917 (arrears). φόρος of bakery. 24 artabas of wheat.
PSI. 954. φόρος of bakery. 30 artabas of wheat and 2 sol. 10 c.

VII/ P. Baden 95. φόρος of bakery. 2 sol. less 10 c.

OIL MILLS

552 P. Flor. 285. Aphrodito. Mill belongs to monastery. Lessee receives a third share for two years, two-thirds to monastery.

576 P.O. 2195. φόρος of two presses. 1 sol. each.

VI/ P.O. 1912. φόρος of one press. 12 c.
P.O. 1917 (arrears). φόρος of one press. 60 sestarii of oil and 60 cakes of soap (σμήματα) commuted for 3 sol.

VII/ P. Bad. 95. Hermopolis. φόρος 4 sol. less 7 c. and 4 sol. less 20 c.

PIGEON-COTES

557 P.O. 1911. φόρος. 12 c.

VI/ PSI. 954. φόρος. 18 c.
P.O. 1912. φόρος. 1 (?) sol.

VII/ P. Baden 95. φόρος. 12 c. and 19 c.

TANNERY

VI/ P.O. 1917 (arrears). ἐνοίκιον βυρσέων. 1200 myriads den.

* In these lists it is uncertain whether φόρος means tax or rental.

POTTERIES

324 PSI. 300. Oxyrhynchus. Sale of pottery. 715 silver coins.
517 P. Lond. 994. Hermopolis. Lease for 10 years. Lessor gets a fourteenth share.
557 P.O. 1917 (arrears). Rent of 2 potteries. 4 sol.
565 P. Cairo 67110. Aphrodito. Lease of third share for lifetime of lessee. 2400 pots annually.

FERRIES

576 P.O. 2195. 30 artabas of wheat and 10 of barley.
VI/ P.O. 1917 (arrears). 7 sol.

BATH

V/ P. Flor. 384. Hermopolis. Bath leased for public use (including part for women). Closed for 15 days during year. Rent 2 solidi (each less $\frac{3}{4}$ c.) and $11\frac{3}{4}$ c.

WAGON

553 P. Cairo 67303. Aphrodito. Lease for use at harvest. Rental 10 artabas of wheat.

BOATS

291 P.O. 2136. Lease-sale for boat of 70 artabas for 50 years, $3\frac{1}{2}$ T.
570 P. Lond. 1714. Aphrodito. Lease of ship of 300 artabas burden. 4 years. Lessee to live on ship and execute orders of lessor.
572 P.O. 149. Lease of private boat for 2 years. 48 s.
581 P. Lond. 1726 (P. Mun. 4). Sale of boat. $19\frac{2}{3}$ s.

VETCH-SELLER'S SHOP

578/81 PSI. 963. Oxyrhynchus. Lease. Three years. Rental 8 c. (1000 λιτά) yearly. Surety is furnished for the lease.
VI/ P.O. 1323. Lease. Rental 1 sol. yearly.

11. LIVE STOCK

The evidence for taxation of live stock in Byzantine Egypt is slight and as yet there is no indication that the Diocletian system of a per capita tax was ever introduced. The requisitions for transport were continued for a time at least, and in the later period various assessments were imposed for providing oxen, mules, and donkeys for various purposes. Requisitions of meat for army supplies were some-

times heavy, but these seem to be limited to supplies for troops stationed locally for special purposes.[1]

In A. D. 316 a tax for transport to defray the cost of shipping grain by sea was imposed. The rate on arable land was 50 Attic drachmae per aroura and double this amount on pasture land. This tax seems to have been aimed against the development of pasture land which may have been the tendency wherever Diocletian's land tax was introduced. However the weight of this tax depends on the value of the Attic drachma at the time.[2]

The common domestic animals, pig, sheep, goat, cow, ass, mule, horse, and camel, are found throughout the Byzantine period. The buffalo was known but there is no evidence that it had been domesticated.[3]

Hunting and fishing were probably still common. A single lease of hunting rights from Heracleopolis dated about the end of the third century implies that they were part of a government monopoly. The contractor had paid a fee of over ten talents yearly for the right to hunt wild animals and birds and here registers a complaint that two villagers poach on his preserves without paying any tax.[4] Fishing or fishermen are rarely mentioned, but fish continued to be a favorite dish of the Egyptians and the industry must have flourished.[5]

While Herodotus states that the pig was considered unclean and was only eaten after sacrifice at the time of the full moon, this taboo seems to have disappeared. In the Byzantine period the use of pork is universal. While the swineherd is not mentioned, the pig was evidently widely raised. In A. D. 331 the report of village officials to the praepositus pagi state that there is no pig merchant or poultry raiser in the community.[6] But in A. D. 338 the *κοινὸν τῶν χοιρομαγείρων* of Oxyrhynchus report a thousand pounds of pork on hand.[7] These specialists became a liturgy in the sixth century and in a series of documents from Antinoopolis surety was provided for a purveyor

[1] For taxes and requisitions see p. 218. The *κάπιτα ὄνων* of P. Lond. 1889 is not a capitation tax but supplies for army donkeys.

[2] P.O. 2113.

[3] Am. Marc. (xxii. 15, 14) implies that it was still wild in his time, Hieronymus, C. 7 (Budge).

[4] PSI. 222. The fee of ten talents may imply a date in the fourth century.

[5] SPP. x. 77. The quarrel of two Fayum villages over fishing rights in the fifth century implies that Oxyrhyncha had certain rights to a beach (*αἰγιαλός*) but it is not clear whether this beach was the banks of a local canal, or the shores of lake Moeris (Wilcken, Chr. 23). Possibly the guild of hunters belonging to the noble house of Aphrodito had a monopoly of fishing rights on the Nile as well as the following of wild birds and hunting of other wild game (SB. 6704).

[6] SB. 7685.

[7] PSI. 202.

of sausage and at least five, possibly eight, cookers of pork that they would remain at their post for the coming year.[8] Pork was the favorite meat of soldiers, and the suckling pig was frequently given as a sportula in leases of land and often appears in private accounts.

Sheep were raised primarily for wool, and there is slight evidence that they were used as food.[9] The shepherd appears to be universal.[10] The estate at Hermonthis employed thirteen shepherds in Mechir each receiving a ration of 2 artabas of wheat (probably for two months), but there is no indication of the size of the flock nor of the profits therefrom.[11] In the Fayum the villages on the border of the oasis seem to have been centres for grazing. Papyri of the fourth century from Theadelphia carry notices of several flocks.[12] Two leases of flocks alone are preserved of which one is of particular interest. In this there were 62 females and 13 rams. The ewes were *ἀθάνατοι* that is, if any die they must be replaced. Six were unshorn, and the remainder had already been clipped. The sheep were of several different breeds, 17 of Croton (?) 8 Xoitic, 3 mixed. The remainder unfortunately cannot be determined because of the poor state of the papyrus. There were 59 goats (5 males). The lease ran for five years on half shares. The lessee had also to furnish annually from his share of the sheep three ewe lambs and three tups. From the kids he gave ten the first year and eighteen annually thereafter. The lessee must not abandon the lease; he was also responsible for pasture, grazing on hay, lambing and other care such as providing cedar oil. He must not allow the flock to bed down in the land of others or of the owners. Nothing is said about taxes.[13] The second lease is poorly preserved but seems to involve at least ten sheep and seventeen goats. The *φόρος προβάτων* paid on the estate of Alypius is said by the editor to be rent and not a tax. Apparently it amounted to 20,000 dr. a year.[14]

While there is no evidence for sheep or goats on the estate of Apion at Oxyrhynchus [15] the guild of shepherds is found at Panopolis and Aphrodito and was probably universal wherever there were numbers

[8] P. Strassb. 46-51.

[9] In P.O. 1862 the writer complains that poor sheep were left, not fit for eating.

[10] Thefts seem to be common; P. Thead. 21-23; P. Cairo, 67148; P.O. 1831. The Shepherds Quarter at Oxyrhynchus, see P.O. 43 v.

[11] P. Leipzig. 97, A. D. 338. The estate belonging to the church in the Fayum employed a shepherd, Kl. Texte 24.

[12] P. Thead. 8-9.

[13] Tax paid in wool. O. Mich. 255; P. Thead. 37.

[14] P. Strassb. 28 (304/5).

[15] The quarrel between the shepherds at Tacona and Tholthis may involve Apion's estate but of this the evidence is meager. Cf. P.O. 1862; SPP. x. 252.

sufficient for the organization.[16] The guild seems to have paid its tax as a corporation, but the amount of 48 s. 19¾ c. paid at Aphrodito gives no indication of how the tax was levied. Dioscurus was apparently interested in stock farming.[17] In addition to donkeys, pigs, camels, dogs, birds, and cattle (ζῶα), there was a detailed account of the sheep. In one flock there were 35. Of these 21 were males, all from the winter lambing, (2 lambs). Ten ewes were of the winter crop and two of the summer. There were other lambs but their description is lost. The clip was 234 lbs. of wool and if the lambs were clipped as well, the average was 7½ lbs. per sheep. In the other flock there were 23 sheep: 10 males and 13 females all from winter lambing. Of the females one was unclipped and for sale; apparently one male was also. Three males and two females were lambs. The average clip of 21 sheep and lambs was a little over six pounds. The clip from lambs must have been small, but we do not know their age. However these averages are substantiated by the entries in Folio V where the clip per sheep seems to vary from 4-7 lbs. In addition to the two larger flocks, the father of Dioscurus and various tenants had over 60 sheep divided up in small lots. From this account it is evident that Dioscurus preferred the winter crop of lambs, and that the weather was believed better for the quality or quantity of wool. The number of lambs is surprisingly small. The use of lamb skin for vellum was hardly profitable in Egypt while paper was still cheap.

The goat was widely raised, and this animal provided meat, milk, and leather. The goatherd is mentioned on the estate of Dioscurus at Aphrodito where he had a herd of 18 full grown and 13 kids.[18] In the early period a sacrificer of goats (αἰγοθύτης) is recorded but this profession was probably identified with the butcher.[19] There is rather infrequent mention of the goat in the papyri.

The donkey was used for transportation. The mule (βουρδών) and the hinny (μούλη) are less well known, especially the latter.[20] The requirement of providing a donkey as a liturgy is attested for the early part of the reign of Diocletian [21] and in the ostraca from Caranis there are lists of citizens who were expected to furnish a

[16] P. Hamb. 56; P. Lond. 1671; P. Cairo 67001, 67090.

[17] P. Cairo 67141. The annual stock fair at Thinis was attended by him and apparently much of his income came from stock raising, P. Cairo 67002. In P. Cairo 67319 he lists pastures in 17 τόποι ravaged by his enemies. These were apparently leased. In addition half a farm, another farm and the fields of Pirion seem to be his own pasture land.

[18] P. Cairo 67141. For thefts see note 10.

[19] P.O. 1136; SPP. x. 252.

[20] For military assessments see p. 218.

[21] P. Oslo. 135.

single ass apiece.[22] The liturgy of providing three donkeys for public transport seems to have disappeared by this time[23] and public donkeys (*δημόσια κτήνη*) are found at Philadelphia and Caranis.[24] Whether these were maintained by private individuals as a liturgy or by the state is difficult to say. In the receipts published by Kase, it would seem that the landowner was assessed a certain amount to purchase these animals (*ὶς λόγον τιμῆς κτηνῶν δημοσίων*), while in other receipts the payment is clearly for transport of grain by means of these animals (*καταγωγή*). At Caranis where the grain was transported directly to the Nile across the desert, donkeys were not only requisitioned from the villagers but were brought from distant nomes, Oxyrhynchus, Heracleopolis, Cynopolis, and others.[25]

Donkeys were requisitioned for mines, for public guards, for the army as well as for the public post.[26] The tax assessment of Oxyrhynchus required from every 5800 arouras two donkeys and a guide to be sent to Coptos, probably for military needs. From every 16,000 arouras a donkey worth 3 solidi and an ox worth two solidi was required for Alexandria. This implies a levy of a solidus on every 3,200 arouras.[27] The estate at Hermonthis seems to have been engaged in the raising of donkeys for two *ὀνοτρόφοι* were regularly employed. Under their care were the hinnies for whom an allowance of barley was made.[28] The mule (*βουρδών*) seems to have been in demand for military service and a fairly heavy assessment was made at times to supply the need. Thus the assessment at Oxyrhynchus was a solidus per 185 arouras.[29] This animal was also useful in transport and farm work.[30]

The ox was used for transportation of heavy loads by wagon, for various farm tasks such as the sakiyeh, plowing, and threshing.[31] There is no evidence for the use of cow's milk, or of the use of veal or beef for eating, but the hides were valuable.

[22] For the dekania, cf. P.O. 1512, 1626, O. Mich. 137.

[23] See P. Rend. Harr. 93, A. D. 294, and Turner's Commentary.

[24] Kase, Papyrus Roll; O. Mich. 329, 402-3, 443-4, 453, 542-3. The expression *ἀποτρίπτων κτηνῶν δημοσίων* in the receipts published by Kase is not elsewhere found. It implies the use of worn out animals but whether donkeys employed in the express post were transferred to the duty of pack-animals in later life is uncertain. It may be noted that payments for transport in this register ceased in A. D. 315. This may be accidental but may also imply a change in the system of taxation.

[25] O. Mich. 332-356 for local requisitions; *ibid.* 365ff. for other nomes.

[26] P. Leipz. 85-7; P.O. 1193, see p. 103.

[27] P.O. 1905, cf. P.O. 2001.

[28] P. Leipz. 97. The hinny is seldom mentioned cf. P.O. 1919 (*μολογενείας*).

[29] See p. 265. P.O. 1905.

[30] P.O. 1836.

[31] P. Lond. 1769; P.O. 2052.

On the estate at Hermonthis there were six βουκόλοι with three assistants, and apparently the estate was much concerned with stock raising.[32] There were at least seven wagondrivers employed but there is no indication of the kind of transportation. It is less clear what is meant by the βοοτρόφοι τοῦ δημοσίου in what appears to be the account of a private estate at Panopolis.[33] Equally uncertain is the meaning of the statement that the βοεικοὶ of Oxyrhynchus owe 244 myriad (denarii) εἰς λόγον τῶν λί(τρων).[34] The last word may be restored in a variety of ways, but whatever the restoration it is evident that the βοεικοί formed a κοινόν and as such were jointly responsible for certain levies. On the estates at Oxyrhynchus the farmer was not infrequently compensated or loaned money to replace oxen which had died during the year.[35] The loan, if loan it was, probably served a purpose in keeping the tenant under subjection to his creditor, the landlord.

The horse was used for racing, probably for pleasure in riding and the chase, and served a utilitarian purpose for the carrying of despatches and for transport of officials. Although a letter speaks of horses worn out with work,[36] it is not likely that they could be used for ordinary farm work before the horse collar was invented.

The hippodrome at Alexandria and Hermopolis, the Hippodrome quarter at Oxyrhynchus, the hippodrome of Eutychia indicate that a long tradition of horse racing had developed in Egypt. There is some evidence of interest in the factions of the Greens and Blues. How the race horses were maintained is unknown. Apparently at Oxyrhynchus the Apion family gave support to the different factions at different times.[37] A fragmentary document gives an account of sizeable contributions by various guilds, seemingly for the support of the races. It also lists contributions by districts of the city, but there is no definite information about how the funds were administered or who collected them.[38]

The horse doctor is mentioned in papyri only at Oxyrhynchus.[39]

[32] P. Leipz. 97. See also Kl. Form. 918, 934.

[33] P. Lond. 1654.

[34] P.O. 1777.

[35] P.O. 1912, 2195.

[36] P.O. 1858, cf. *ibid.* 1862.

[37] P.O. 140 (A.D. 550), 152 (618); PSI. 953. In P.O. 2110 (A.D. 370) the rearing of horses seems to be a liturgy imposed on senators.

[38] P.O. 2028. For Alexandria the Augustalis was allowed to make an appropriation of 320 solidi, presumably from imperial revenues, for the thirty-six horses provided by him and 100 solidi were contributed by the curiales (Edict xiii).

[39] P.O. 92, 1974. Preisigke, WB., lists the ἱπποϊατρός under *Beamten*, and his salary may have been paid by the state, though evidence for this in Egypt seems to be lacking.

It is probable that his skill was not limited to horses alone. On the estate of Apion the horse-trainer (ἱπποχειριστής) indicates the importance of horse raising at this period.[40]

The camel was widely used in agriculture, in transport work of all kinds, especially for the desert caravans, and they were requisitioned for the mines and for the army.[41] While there are numerous references to the camel, his driver, and his stable, there are few sales recorded, and little definite evidence survives about maintenance or cost of transport.

The estate at Hermonthis raised hens, pigeons (Greek and Egyptian), quail, ostriches and birds of which the description is not clear (ὀρνέων πε . . . μάτων).[42] The Egyptian hen is a rather scrawny product and it has been observed that importations of improved or fancy strains in modern times speedily deteriorate to the native level. Whether the ὀρνίθια which appear in household accounts is the hen or some other bird is not quite clear. An allowance of grain for feeding the ποῦλλα on an estate seems to be an attempt to fatten up some of the flock against the visit of the owner.[43] Eggs were a common article of diet. The dove cote is a common sight in the Nile valley, and the dung was used as fertilizer. The φόρος περιστερεῶνος in the estate records of Oxyrhynchus may be a rent or a tax.[44]

Bee keeping was probably more extensive than the records indicate. Honey was desirable in the absence of any other sweets. In A. D. 338 the honey workers made a declaration along with all other guilds of supplies on hand at the end of the year.[45] The control of these guilds seems to be envisaged by the necessity of this report, and in the sixth century an affidavit is presented to the riparius of Aphrodito wherein an elder of the church and an expraepositus of the camp go bail on mutual security that Aurelius Hermauon and his son, both apiarists, will remain in the village for the future, and they will present them whenever required excepting only on their taking refuge in sacred ground or building.[46] Penalty will be 12 solidi. Whether these two men were in default to the state for some other reason, or the apiarists or dealers in honey had become a village liturgy seems difficult to determine. The bee-tender was apparently

[40] P. Warsaw 30 (A. D. 571).

[41] P.O. 1921, cf. P. Lond. 1796 (γεουχικῶν καμήλων). Transport: P.O. 2018; 2029, 2032. Army use: P.O. 43R, 2046. Use in mines: PSI. 1037.

[42] P. Leipz. 97. Cf. P. Baden 95, P. Lond. 850, BGU. 725, P. Cairo 67166. The poultry raiser may have been regarded as holding a sort of liturgy, cf. SB. 7685 where the village officials report to the praepositus pagi that there is none in their community.

[43] P.O. 1913.

[44] P.O. 1911, 1912, 2037.

[45] P.O. 85.

[46] P. Cairo 67296 (A. D. 535).

employed on the estate of Ammonius where he received an allowance of grain, apparently two artabas per year. This was by no means sufficient to maintain life, and the purpose of the payment is unknown.[47]

CAMELS

289	BGU. 13	Fayum	Male Arab 16½ T.
302	Gr. Pap. ii. 74	Oasis	White 9 T.
VI/	P.O. 1165		Camels worth 20 nummi (solidi?)

Rent of camels: BGU. 21 (341), BGU. 34 (4) P.O. 1953 (419), SPP. xx. 211 (5-6/) P.O. 1862, 2029, P. Lond. 1800 (6/).

CATTLE

346	P. Gen. 48		Team of full grown oxen 1200 T.
IV/V	P.O. 1905		Assessment for ox 2 s.
V/VI	SPP. xx. 236	Fayum	10 solidi each.
VII/	PRG. iii. 55	Fayum.	Lessee acknowledges receipt of two solidi ὑπὲρ ἀθανάτων probably as a loan for purchase of oxen for irrigation.

In accounts of estates allowances are sometimes made to tenants for loss of cattle, P.O. 2195 (576) 3 solidi less 15 carats, P.O. 1913.

RENT OF CATTLE

ca. 341	P. Princeton 151	Ibion	2 females (ἀθάνατοι) for 1 year at 6 artabas of wheat. Lessee owns any offspring.
VI	PSI. 1122		Lease of oxen in bakery.

State owned cattle seem to be mentioned in P. Lond. 1654 (4/s)

DONKEYS

III/IV	PSI. 810		107 and 172 drachmae
288	P. Cornell 13	Cynopolis	Female 10 talents
299	P. Thead. 3	Fayum	White donkey and foal (latter to be returned when weaned). Price in talents.
307	SB. 5679	Oasis	White female. Half share 2½ talents
309	Berlin Leihgabe 21	Hermopolis	Male 6 T. 3500 dr.

[47] P. Cairo 67138-9, 67288. The purchase of honey is recorded in the village accounts of Aphrodito apparently for the entertainment of official guests. This may account for the liturgical character of the beekeeper.

311	P.O. 1708		Male 10 T. 4000 dr.
330	PSI. 882	Oxyrhynchus	Female 40 T.
341	BGU. 21	Hermopolis	Sale (or rent) 34 T. and 1 cnidion of wine.
IV/	P. Oslo 134	Apollinopolis	Colt 132 dr.
IV/V	P.O. 1905		Assessment for donkey 3 solidi
VI/VII	P.O. 922		Two females and a colt 4 solidi
			Males; 3, $5\frac{2}{3}$, $8\frac{1}{3}$ solidi

Sales: fragmentary, BGU. 373 (298). The price range shows that PSI. 810 should be earlier than Diocletian, and P. Oslo 134 should probably be dated about the same time.
Rentals of donkeys: P. Oslo 135 (286/293), SPP. xx. 75 (3/4), BGU. 34 (4), PER. 37 (4/). Allowances of food for donkeys and mules is made in P. Leipz. 97 P. Amh. 153, P. Oslo. 135. In all cases the number is unknown. In P. Warren 27 the allowance for 20 ζῶα per day is $2\frac{3}{4}$ μούεια. Public donkeys used for transportation of grain at Karanis: See O. Mich. In Kase, Papyrus Roll the expression ὄνοι ἀπότριπτοι is not found elsewhere.

FOWL

IV/	P. Lond. 1259		8,000, 12,000 dr. each
			16,000 each for 4 cocks
			31 talents for 13 fowl
	SPP. xx. 81	Hermopolis	5 talents each
	PER. E. 1014		600 talents for 1 pigeon
VI/	P. Cairo 67058		$\frac{1}{3}$ c. each [ὀρ(νίθια)].
	67212		$\frac{1}{3}$ c. each ὀρνίθια.
	67330		$\frac{1}{2}$ c. each [δοκ/ = τοκ(αδεία)]?

Unspecified quantities sold 515 myr. denarii in P.O. 1729, and for $4\frac{1}{3}$ myr. denarii in PER. N. N. 74.

HORSES

307	P. Thead. 4	Fayum	Mare 130 T.
618	P.O. 153		3 solidi each
VI/VII	P.O. 922		3 solidi each

Contract to take care of stables, P.O. 138, 140. For express post see p. 163. Rations of 7 ponies and 2 donkeys for Mesore—Thoth (65 days) is 42 artabas of barley (PRG. iii. 50).

PIGS

III/IV	PSI. 810		44 drachmae for 5 pigs
Early IV	O. Mich. 102	Fayum	200 dr. for suckling
IV/	P. Lond. 1259		2400 dr. each

			8 and 10 talents each for sucklings
443	P. Rend. Harr. 149		700 myriads each for sucklings
512	SB. 7369	Hermopolis	5000, 6000 talents each for sucklings
VI/	P. Cairo 67212		2½ carats each
	P.O. 1917		1 solidus 3 δέρματα (folles?) each (?)
VII/	SPP. xx. 218	Hermopolis	3 carats (36 folles) each.

SHEEP

306	P. Thead. 8	Lease of flocks in partnership with owner. Half of issue to each, lessee furnishing a certain number of yearlings with fleece and ten kids in the first year; eighteen thereafter. Apparently different varieties of sheep in flock (62 sheep, 59 goats) which is designated as ἀθάνατοι.
327	P. Flor. 53	Theadelphia. Apparently a lease of flocks in which lessee had suffered great losses.
IV/	P. Thead. 9	Lease of flock of 10 sheep and 17 goats for two years. Fragmentary. Rental of goats is paid in 5 male kids and a certain number of females.
VI/	P.O. 2058	18 πρόβατα (?) sold for 4 solidi.

In BGU. 308 (Fayum) the lessee agrees to furnish 8 goats for milk on Sundays.

There is an account of flocks in P. Cairo 67,141 (Aphrodito). The estate apparently had these flocks, one of 35, one of 23 sheep. Some of the lambs were winter born; others in summer. Herd of goats was 31 including the kids. Several tenants had 2 or 3 sheep each. There were also distributions of barley for feeding camels, donkeys, birds, pigs, dogs. Apparently 33 sheep (excluding the two female lambs) yielded 234 lbs. of wool, and 17 (excluding 5 lambs and 1 unshorn) yielded 131 lbs. or an average of ca. 7 lbs. per sheep.

IV. DEFENSE

1. THE ARMY AND RECRUITING

THE division of Egypt into provinces and the separation of the civil and military commands probably followed the suppression of the revolt of Achilleus.[1] At the same time the southern boundary was fixed at Philae, and Diocletian induced the Nobatae to settle in the abandoned area, called the Dodecaschoenos. The tribute from this region was of no importance and the cost of defence against the Blemmyes and Nobatae was very great. According to Procopius the annual subsidy paid to these tribes to refrain from attacking Egypt continued to his day but was of little avail unless they were also kept in check by fear of Roman garrisons.[2] Since this was the chief danger point of raiding bands the Duke of Thebaid seems to have had the only effective military force in Egypt. The Fayum also seems to have been subject to raids from the Libyan tribes and in the fourth century Abinnaeus was praepositus castrorum at Dionysias.[3] At Caranis the Michigan expedition found a large barrack-like structure which Dr. Peterson thought was for troops although the papyri have given no evidence for military forces there. The old camp at Babylo was occupied in the early fourth century. It was probably a station for troops throughout the Byzantine period, though there is no record of its use until the Arab conquest.

The Notitia Dignitatum lists the troops at the end of the fourth century under the Duke of the Thebaid as eight divisions of cavalry and eight legions (I Valentiniana at Coptos, I Maximiniana at Philae, II Traiana at Upper Apollon, II Flavia Constantia at Cusae, II Valentiniana at Hermonthis, III Diocletiana at Ombos, Praesentia and Thebes).[4] In addition there were 15 alae of provincials and 17 cohorts (including one Roman). There is no evidence of the size of these detachments, but the significance of the old terms had long since been lost. There was no reason for maintaining large forces in

[1] Wilcken, Grundzüge 71ff.; Rouillard, L'administration civile de l'Égypte byzantine. The best study of the army is Maspero, Organization militaire de l'Égypte byzantine.

[2] Procopius, Histories i. 19.

[3] The correspondence of Abinnaeus is published in the London and Geneva collections.

[4] Seeck, 63-6.

the Thebaid except to check raids of the Blemmyes and the legions were probably not larger than cohorts.

In A. D. 468-9 the prefect Augustalis had combined with his title that of Dux of the Egyptian limes. Presumably he was given command of troops to maintain the peace at Alexandria.[5]

In the sixth century the military situation was little changed. In his Edict XIII Justinian confirmed the combination of the office of Augustalis and Dux and made arrangements for the civil and military government of Libya but whatever disposition he may have made for the provinces of Upper Egypt are lost. The Transtigritani in the Fayum were evidently a small body of numeri, for their leaders protest that they were unable to draw their annonae from the village of Cerce because they were beaten off by the villagers with the aid of troops maintained by the owner of an estate.[6] At Antaeopolis the detachment of Justinian Numidians was about 500. To supplement these in avenging a raid of the Blemmyes, a detachment from Africa called the Bis electi was called in and in addition at least two squadrons of Philitiani of unknown origin.[7] Probably there were similar bands of numeri in each pagarchy who served mostly as a local police force.

In the seventh century the Persians occupied Egypt ca. A. D. 619 but were driven out after ten years. However the weakness of the defensive system was revealed, and in A. D. 639 the Arabs with a small force overcame the garrison stationed at Pelusium to guard the eastern approach, and marched direct to Babylo where the main military force of Upper Egypt seems to have been stationed. When this was captured the resistance in Upper Egypt seems to have collapsed except for some fighting at Oxyrhynchus. Alexandria itself surrendered in 641 and the Byzantine rule was ended.[8] As Maspero observed, the troops stationed in Egypt at this time were small groups of numeri who served as a local militia and police force. There was no centralized command and these small bodies of men had never been trained to act in unison. As a result the conquest of Egypt was accomplished by a small but very efficient fighting force of Arab cavalry.

In the fourth century the Egyptian army seems to have been recruited locally. Abinnaeus sent his agent to Caranis but he reported that he had been unable to get a single man. Whereupon he

[5] C. J. i. 57. 1; ii. 7. 13.
[6] BGU. 836 (Chr. 471).
[7] P. Cairo 67057; P. Flor. 297.
[8] Butler, Arab Conquest; Lane-Cooper, Egypt, The Middle Ages.

seized the person of the irenarch and apparently collected two solidi and fifty talents either to provide a substitute or as ransom for the irenarch.[9] Military service was evidently as unpopular then as now. Once recruits were sent from the Thebaid to Antioch and orders were issued to the riparii along the route to guard against their escape. If any did escape the riparius had to provide a substitute in addition to paying a fine.[10]

While Abinnaeus collected his own recruits, Oxyrhynchus seemingly was required to provide a quota and to pay the new recruit a certain sum on enlistment.[11] In the Hermopolite nome recruiting (*στρατολογία*) was a liturgy. The officer for the village of Pesla was vouched for by four of his fellow citizens who offered security that he would remain in office or else they would act for him.[12] Whether this liturgy is related to that of the temonarius mentioned in the Theodosian Code is unknown.[13] The *κεφαλαιωτής* occurs with reasonable frequency in the papyri in charge of some liturgy or as head of a guild or village but there is no evidence that he was the equivalent of the capitularius who had to do with recruiting although he seems to have collected army supplies.[14]

According to Socrates, Valens stopped local recruiting within the Empire after the reception of the Goths and levied instead the aurum tironicum or 80 solidi for each recruit.[15] It was probably for this purpose that gold was exacted at Hermopolis during his reign. The assessment in A. D. 375 was 238 solidi, of which the collector paid over 61 solidi claiming that the remainder had been stolen.[16] The assessment was evidently based on the aroura (*λόγου χρυσοῦ ἀρουρα-[.]ονον*).[17] In A. D. 375-6 the chrysones of the Thebaid acknowledged the receipt of 1464 solidi for the period covering the 6–12th years of the indiction and 44½ s. covering the 13–1st years.[18] In A. D.

[9] P. Gen. 54. See *ibid.* 63-4 which may be assessments for troops.

[10] P. Thead. 49; Chr. 469: See Grundzüge, 376 for a Leiden ostracon of the fourth century which mentions a tax for transport of mules and recruits. Troops to Africa in A. D. 388 (Leipz. 63) are probably not raw recruits.

[11] P.O. 1103 (Chr. 465). At Heracleopolis the sum of 30 solidi was paid (Chr. 466). See BGU. 21 (A. D. 340) for expenses in behalf of recruits at Hermopolis.

[12] P. Leipz. 54. At Heracleopolis there was an *ἐπιμελητὴς τιρόνων* while at Hermopolis the centurion attached to the catholicus seems to have been in charge (see note 11).

[13] C. Th. vi. 4. 21. See Clyde Pharr on the text and interpretation of this constitution, AJP. lvi (1945), 50.

[14] P. Thead. 22-3. Wilcken regards the *κεφαλαιωτής* and capitularius as identical (Grundzüge 410). P. Leipz. 47-52; P.O. 1919; P. Cairo 67067.

[15] Hist. Eccl. iv. 34; Sozomen, Hist. Eccl. vi. 37.

[16] P. Leipz. 24-25.

[17] P. Flor. 95; P. Leipz. 62.

[18] P. Flor. 95.

385-6 the same official acknowledged the receipt of 93 lbs. 6 oz. (6742 s.) for the years 6-8 of the indiction.[19] At Oxyrhynchus the assessment for recruits was one solidus per 83 arouras in the late fourth or early fifth century.[20] In A. D. 464 the heirs of Poemenius paid four million drachmae (one million denarii) as their share of the village assessment. The tax here was combined with an assessment for the primipilus and for mules.[21] Except for a doubtful restoration in an Aphrodito papyri, the tax for recruits does not appear after this date.[22]

In spite of the legislation of Valens, no Goths appear in the Egyptian records except as a private band maintained by Apion probably as a personal body guard.[23] The bucellarii to whom meat was distributed were probably part of this guard and the names indicate that they were mostly of non-Egyptian origin.[24]

The hereditary character of military service is revealed even before the reception of the Goths by Valens.[25] Since there is no evidence that Goths were introduced into Egypt, the recruiting of the troops there probably continued as before but became more and more a hereditary profession. In A. D. 578 eight recruits were added to the *matricula* of the garrison of numeri at Elephantine after being approved by the κοινόν of officers and the Duke of the Thebaid.[26] Whether these were sons of soldiers or drawn from other classes of the population is not clear.

2. ANNONA OF ARMY AND OFFICIALS

In the late third and early fourth century there were special requisitions for the forces used by Diocletian in Egypt, and Licinius evidently drew heavily on Egypt for supplies in his struggle against Constantine.[1] After the death of Licinius, Egypt seems to have been at peace except for sporadic raids from the Libyan desert on the Fayum and from the barbarian tribes beyond Philae.

The common soldier seems to have received 30 solidi on enlist-

[19] P. Leipz. 61.
[20] P.O. 1905. This breviarium may be entirely for military purposes.
[21] P.O. 2001. See Wilcken, Grund. p. 376.
[22] P. Cairo 67291.
[23] PSI. 953. For similar private police force see BGU. 836.
[24] P.O. 1903.
[25] C. Th. vii. 1. 5 (364).
[26] P. Munich 105 (Chr. 470). Recruits in Alexandria are mentioned in P. Lond. 1889.
[1] Requisitions from Oxyrhynchus for Syene (P.O. 43), A. D. 295. Probably contemporary is SPP. xx. 84.

ment.[2] This seems in effect to have been a purchase price for his person during the term of enlistment. There is no evidence that the soldier received any pay, but he was fed, clothed and supplied with equipment. There is no evidence for the length of service, pension or rewards on completing his term of service. The lands granted to the border militia in other provinces may have been granted in Egypt as well and undoubtedly the immunity from liturgies and taxation by Constantine had universal application.[3]

The needs for the army were probably determined by the military commanders annually,[4] and their requisitions were forwarded in the fourth century to the catholicus who issued a delegatio (*διατύπωσις* [5] or *χειρόγραφον*) to the province. This seems to have gone to the municipal authorities [6] and the pagarchs. The latter made assessments on the villages. Thus the governor wrote to the proedri and exactors of Hermopolis complaining that they had neglected the supplies for three years and threatening the curiales with penalties. The assessments on the village of Caranis early in the fourth century brought out a curious notation by the scribe who wrote the document: "For the comarchs make the assessments as they please for they do not inquire into *σαλάρια* nor----for they act in cooperation with the praepositus, paying no attention to the secretary in casting the lot, nor acting in accordance with justice." [7]

Various officials were in charge of the collection of supplies. Overseers (*ἐπιμεληταί*) were appointed for each village and its surrounding territory (horiodeictia) who may have had as assistants the tesserarii or quadrarii. The actual collection was made by sitologi or by *παραλῆμπται*. Later these were replaced by the apaetetae, hypodectae or apodectae, or, in the case of money, by the exactor. These officials held office at the beginning of the fourth century as a public liturgy, but later they seem to be entitled to receive a commission on the amount collected.[8]

[2] Chrest. 466. There is no evidence that the 80 solidi granted by Valens to the Goths were applied to recruits from the provinces.

[3] C. J. xii. 46. 1.

[4] P. Rein. 56.

[5] The earliest example of *διατύπωσις* in money is Kase, Papyrus Roll. iii. 4, 23; v. 9. where Mr. E. B. Turner suggested this restoration and this has been verified. The *χειρόγραφον* or *βρεούιον κατὰ χ.* is evidently from the files of Abinnaeus in P. Gen. 63-4. See Taxes in Kind.

[6] BGU. 1027.

[7] Boak, Harv. St. li (1940), 45.

[8] See Preisigke WB. *s. vv.*; Ét. d. pap. v (1939), 95. The first mention of commission for collectors is A. D. 369 (C. Th. xii. 6. 15). The *διαστολεύς* at Hermopolis is once mentioned in connection with collections (SPP. xx. 89, 121).

The material which was collected was delivered to an official called the διαδότης. His office was evidently a liturgy and he was nominated by the proedros of the municipal senate. It was part of his duty to deliver the goods to the army and provide the transport to the various posts.[9] A letter of Achilles to his brother asks him to see to it that they both be named as διαδόται of wine and meat for the country districts or for Antinoopolis itself so that they may remain at home and not have to go to other districts.[10] The post of διαδότης of chaff was to be avoided lest the chaff be not accepted and they would be compelled to pay the price of it as happened under Silvanus. Apparently the collection of barley was to be avoided also.

The usual allowance for the common soldier was bread, wine, meat, and oil. In addition to wheat other cereals were requisitioned: aracus, barley, beans, chick pea, kidney beans, fenugrec, and πιστίκιον.[11] Chaff served chiefly as fuel but seems also to serve as fodder.[12]

Wine supplanted beer as the favorite drink of the Egyptians. The latter was once distributed to Dalmatians at Oxyrhynchus,[13] but wine seems to be the usual assignment. The assessment was made by villages (δι' ἐπιγραφῆς κωμῆς), and a rate of 70 sestarii per ar. is once reported.[14] The assessment at Antaeopolis in the sixth century seems to be 82½ sestarii (if these were the units used) per ar.[15]

The distribution of meat was presumably pork. How the assessment was made is not clear. At Oxyrhynchus certain villages were required to furnish definite amounts for a certain number of days each.[16] The hybrid word οἰνόκρεον seems to be used indifferently for wine or meat. In the sixth century at Antaeopolis there was an assessment of 106,179¼ units imposed on arable land and vineyard

[9] Chr. 419-423.

[10] P. Rein. 56.

[11] πιστίκιον (Harv. St. li (1940), 49 is identified with the emmer by Jasny, Wheats of Classical Antiquity, 146. Most of the other cereals were probably for fodder. SPP. xx. 84; P.O. 1572; P. Baden 173 etc.

[12] P.O. 43. This was assessed on wheat growers but once seems to be a per capita tax (O. Strass. 465). Coptos once overpaid her assessment by 43 s., and the sum was set aside to apply on requisitions of barley for the following year (P. Leipz. 63, A.D. 388). An assessment of chaff at Caranis was 25 lbs. per aroura (Ét. d. Pap. v (1939), 95).

[13] P.O. 1513.

[14] O. Askren 16. P. Rend. Harr. 99. For extra charge in the late third century see Youtie, TAPA lxxi (1940) 634. Wine was usually collected by the ἐπιμελητής. The collector was allowed 5% for wine and pork by the constitution of A.D. 369 (C. Th. xii. 6. 15). The tax of 1% (actually about 2%) on an estate of the sixth century (SPP. xx. 213) is of uncertain purpose. Apparently the distributor on Apion's estate got a similar commission (PSI. 953).

[15] P. Cairo 67057 (iii. 10) if the units of wine are correctly read as 212, 358½ sest.

[16] P.O. 1545. The gnoster of the village seems to make the individual assessments (SPP. xx. 29).

(42,981 ar.), or approximately $2\frac{1}{2}$ units (lbs.) per ar.[17] The duty of cook takes on the character of a public liturgy.[18] The officers were sometimes provided with delicacies such as trotters and fowl.[19] Probably an assessment of dried fish (*σάλπων*) was for their benefit.[20] In the sixth century the ration of the soldier varied from half a pound to two pounds a day.[21]

Oil is rarely mentioned in the fourth century as a military assessment. In A. D. 308 there was a requisition of 1900 sestarii from the Oasis, and about this time a small amount was levied as a tax on an estate at Hermopolis.[22] In the sixth century the allowance of olive oil varied from an eighth to a tenth of a sestarius daily. There is no assessment of oil in the tax register of Antaeopolis nor does it appear in the delegations sent to Aphrodito. Possibly raphanus oil was distributed instead.[23]

Requisitions of clothing are limited to the fourth century. In A. D. 314 the village of Teeus paid $2\frac{2}{3}$ tunics and $\frac{1}{2}$ pallium. While this assessment may have been paid in cloth, it is probable that inconvenient fractions were commuted for money.[24] The delegatio for dalmatica was imposed on tenants of crown land.[25] A constitution of A. D. 377 allows the assessment of a single garment in Egypt on 30 iuga.[26] Shortly after this a military delegatio was issued and a copy preserved at Oxyrhynchus prescribed 1 chlamys on every 243 ar., 1 tunic (*στιχάριον*) on every 175 ar., 1 cloak (*πάλλιον*) on every 1925 ar. And apparently eleven linen tunics could be substituted for twelve woolen chlamydes.[27] Seven hundred pairs of shoes were once

[17] P. Cairo 67057 (iii. 9). The unit is probably the pound, but the readings are uncertain both for wine and meat. For commutation to money see P. Lond. 984 where the value of wine and meat is given as 330,000 denarii per unit.

[18] P. Hamb. 46-50; SB. 7685.

[19] P.O. 1513, 2046.

[20] O. Strass. 472 (*ὑπὲρ ιη' πόλεως* is of uncertain meaning).

[21] See below.

[22] P. Leipz. 64. In SPP. xx. 93 there was a commutation of meat and olive oil on an estate. The tax on meat for the 5th year was $1\frac{1}{2}$ lbs, 6th year $3\frac{3}{4}$ lbs, 7th year $2\frac{3}{4}$ lbs. Oil for the 5th year 3 sestarii, 6th year 1 sest., 7th year $1\frac{1}{2}$ sestarii.

[23] P. Cairo 67076, 67145; SPP. x. 251.

[24] P.O. 1448; cf. P. Lond. 1259. These requisitions were sometimes paid for, and a penalty exacted for delay (BGU. 620).

[25] P. Oslo 119 (319). See SPP. xx. 87 for a requisition of Cilician weave. *Ibid.* 92 for $2\frac{5}{12}$ shirts. SB. 7536. Adaeratio PSI. 781 (341). In PRG. v. 61 (Heracleopolis) fantastic prices in silver currency indicate the depreciation of this coin. The only example in the sixth century is PSI. 196 where the *μερισμὸς βεστιαρίων* is paid in gold.

[26] C. Th. vii. 6. 3 (A. D. 377). This is the only reference to iugatio in Egypt. It is difficult to relate the 30 iuga of their constitution with the areas prescribed in P.O. 1905.

[27] P.O. 1905. There seems to be considerable activity in the collection of clothing around A. D. 371 (P. Leipz. 45-6, 58-60).

requisitioned at Oxyrhynchus but there is no other evidence for similar requisitions.[28] Similarly there is one requisition of clothing for marines.[29] The *anabolicum* in linen is last recorded in A. D. 420 but this probably supplied the needs of the imperial court.[30]

Requisitions of charcoal may be for the army or Alexandria.[31] Wood collected by apodectae was probably for military purposes.[32] In the sixth century the allowance of two pounds a day to bucellarii and Scythians and 100 lbs. to the tribune is recorded.[33] The levy of palm ropes at Oxyrhynchus in A. D. 319 (P. Oslo 119) seems to have been distributed by villages and assessed per capita.

Mules were sometimes provided. The assessment at Oxyrhynchus was a gram of gold on $6\frac{1}{4}$ ar.[34] In the same document assessments for cattle and asses are presumably for military purposes as well as the *ναῦλον* of Thalattion and Clement.[35] The tax for mules, primipilus, and recruits was combined in A. D. 466.[36]

Mitteis cites from Ducange the quotation from Theodoret that *πριμίπιλον* is the food allowance allowed to the first javelin throwers in the army (*τὸ τοῖς πρώτοις ἀκοντισταῖς στρατιώταις διδόμενον σιτηρέσιον*).[37]

The collection of rugs by a detachment of soldiers at Oxyrhynchus seems to have been illegal and elicited a protest.[38]

When Egypt was created a separate diocese about A. D. 380, the Augustalis presumably now issued all requisitions. In the sixth century the divine delegatio was issued annually designating the annonae and capita for the soldiers in the province.[39] In Edict xiii (c. 13) Justinian placed the responsibility for military expenses of the troops in Alexandria and both Egyptian provinces on the Augustalis. The procedure in the Thebaid seems to be as follows. In A. D. 541 the actuarius of the numeri certified the needs of the troops to the tribune of the praetorian notarii who issued the requisitions to the various villages of the eparchy. Thus Aphrodito was required to furnish 203 artabas of wheat and 8750 sestarii of wine-meat as its contribution for four months to the numeri at Antaeopolis.[40] The grain could be

[28] PSI. 886.
[29] PSI. 781.
[30] P.O. 1136. See further *anabolicum* under miscellaneous taxes.
[31] P. Baden 29.
[32] O. Mich. 257.
[33] P.O. 1920, 2046.
[34] P.O. 1905. Cf. P. Leipz. 87; P.O. 2001; SB. 4525, 7034.
[35] See p. 255.
[36] P.O. 2001.
[37] P. Leipz. 87.
[38] P.O. 1253.
[39] BGU. 836.
[40] P. Cairo 67320. Cf. 67050-1. In the latter the wheat assessment was 170 artabas. See 67287, where wine-meat may be commuted at 170 units per solidus.

commuted at the rate of 40 modii (12 artabas) per solidus and 5000 units of wine-meat at 200 per solidus. This order of the tribune is called δικαστικὸν πρόσταγμα and was in advance of the praedelegatio which would be issued later.

Somewhat similar are three requisitions for the 508 numeri of Justinian Numidians stationed at Hermopolis which probably are somewhat later in date. These were issued by the governor (ἄρχων) of the Theban province apparently at the instance of Count Plutinus and the supplies were delivered to the optio in advance of the delegatio which was evidently long delayed.[41]

	Wheat	Barley	Wine-Meat
Sept.-Dec.	243⅓ mod.	– – –	2916 sestarii
Jan.-Apr.	240 "	958¼ units	1934½ "
May-Aug.	218 " ?	– – –	– – –

In the last of these the preamble mentions chaff and wine-meat but these were omitted in the *formaria*. Possibly the symbol which Bell read as an abbreviation for barley should be read as chaff, which might very well be used for heating purposes in winter. If barley was furnished it was for fodder and the units seem unusually high. In each of these payments there was a small allowance of wheat and wine-meat τῷ δημοσίῳ which Bell regards as salary or expenses of officials.

In the Fayum the delegation of capita and annonae was assigned in similar fashion but evidently the Transtigritani collected them from the villages directly and when they were driven off from the village of Cerce, the officers sent a protest to the governor (βάρων) of the province.[42]

Clothing does not appear to be collected in the sixth century although the μερισμὸς βεστιαρίων is once mentioned and is paid in gold.[43] Raphanus oil was distributed at a fifth of sestarius at Aphrodito (?),[44] while at Oxyrhynchus olive oil was given in varying amounts.[45] Special requisitions of saddles for camels and sacks from bag-makers were made.[46] A requisition in the Fayum for leather,

[41] P. Cairo 67321 (12th year) and dated by Maspero A. D. 548 or 563; P. Lond. 1663 (13th year); SB. 8028.

[42] BGU. 836.

[43] PSI. 196. A μερισμὸς ὁρόβου was collected by the apaetetes and was presumably for military purposes (Kl. Form. 1134, 1137).

[44] P. Cairo 67145 (uncertain date).

[45] See below p. 226.

[46] Kl. Form. 119, 124, 204.

wool, sheep, hay, goat skins, mattresses, and raphanus oil was apparently issued in the face of the Arab invasion.[47]

In addition to requisitions in kind, payments in gold were made. Thus the village accounts of Aphrodito show payments for the most noble Numidians in three annual instalments. These sums were paid to collectors sent from Antaeopolis.[48] The chrysones or tax receiver for the Thebaid acknowledged receipt of gold from Aphrodito for ἀννωνιακὰ εἴδη which was presumably forwarded to Constantinople.[49]

The tax register of Antaeopolis also indicates that the maintenance of the army cost heavily in money as well as in supplies.[50] It is probable that the expenses of this register are unusual and represent the cost of fitting out an expedition of reprisal against the Blemmyes. The account of the annona for that year is as follows:

Bis electi	2088 s. 5 c.
Expedition (?)	1195 s. 14¼ c.
Justinian Scythians	473 s. 12 c.
Philitiani and—	1198 s. 16½ c.
Transport animals	207 s. 3 c.
Drivers	28 s. 12 c.
Bastagarii	37 s.
Physician of Antaeopolis	25 s.
Martyrion of Abbott—and city guard	18 s. 17¾ c.
Total	6072 s. 21 c.

Assessments in kind (Col. 111)

Wheat	6,729 art.
Meat	106,179¼ lbs. (?)
Wine	212,358½ sestarii
Barley	40,819¾ modii (?)
Chaff	83,600¼ units

The readings of the assessments in kind are not by any means clear and the above is a provisional interpretation of the readings of Maspero. The wheat bears no relation to the area of arable land (40,403 ar.). The meat is assessed on arable land and vineyard

[47] P. Lond. III. 10 (A.D. 639-40). This was paid for.

[48] P. Cairo 67056 (34 s. 15 c. for the 2nd instalment of the 14th year); 67058 (61 s. 18 c. in 3 instalments of 12th year, 73 s. 2 c. in 3 instalments of 13th year); P. Lond. 1670 (3rd instalment 20 s. 20 c.); 67287 (204 s. in 3 instalments of 1st year).

[49] P. Cairo 67088-9, 67043.

[50] P. Cairo 67057.

(42,981 ar.) and is approximately $2\frac{1}{2}$ lbs. (?) per ar. The wine is assessed on vineyard only and the number of units are exactly double those of meat and are approximately $82\frac{1}{2}$ sestarii (?) per ar.

The Bis electi, as Maspero observed, had served in Africa and evidently were summoned from there to supplement the local forces. The Justinian Scythians were probably numeri borrowed from some other pagarchy. The Philitiani were apparently cavalry and assessments in money were made at Aphrodito for two squadrons.[51] Apparently they were associated with some other cavalry whose designation is undetermined (Συνιτ∫τ∫). The bastagarii were engaged in the transport of iron, apparently in the service of the armorers.

If all these troops were provided with food and clothing, it is not clear for what purpose the gold taxes were used. Since we can reconstruct the annona of soldiers with approximate accuracy, it would appear that 6729 artabas of wheat would only supply about 360 men for a year. Allowing two units of wine per soldier the assessed amount would suffice for 290 men for a year. Evidently these assessments for food were designed solely for the regular numeri at Antaeopolis and this was supplemented by assessments from Aphrodito.[52] Probably most of the gold was used in purchasing supplies for the Bis electi etc.

The soldiers and officials of the government were supplied with certain rations of bread, meat, oil and wine, and this constituted their annona. If the soldier or official was mounted or required transportation he was allowed provisions for each mount (hay, chaff, or cereals, usually barley, was used for fodder) and this was called a capitum.[53]

We are now able to determine the rations of soldiers in the sixth century with some accuracy. A troop of Scythians in the retinue of Athanasius, patrician, from the Thebaid remained for some days at Oxyrhynchus.[54] The record of their daily food ration was recorded as follows:

[51] P. Flor. 297.

[52] For the annona see below. If Aphrodito furnished an average of 240 artabas a year to Antaeopolis, this amount would be enough to support 13 men for a year allowing four pounds daily.

[53] See P.O. 43 Recto IV. 9 (κάπιτα). This is the first appearance of the annonae and capita (A. D. 295). In C. J. I. 27. 1 the form used is capitus (4th declension). κάπιτα ὄνων in P. Lond. 1889 is evidently not a head tax but fodder for army donkeys.

[54] P.O. 1920 (A. D. 550-60). The prices are as follows:

Wheat	$86\frac{1}{2}$ art. 4 ch.	$8\frac{2}{3}$ s.
Meat	120 lbs.	1 s.
Oil	45 sest.	1 s.
Wine	25 dipla	1 s.
Wood	53 centenaria	$1\frac{1}{2}$ s.
Grass	1 aroura	1 s.

The annona does not include the wood which is approximately 2 lbs. per day.

	Bread	Meat	Oil	Wine
Cancellarius etc. . .	4 lbs.	1 lb.	5/48 sest.	2 sest.
Scythians . .	4 "	1 "	1/8 "	2 "
Messengers . .	3 "	1/2 "	1/10 "	1 "
Messengers ripariensis	3 "	1/2 "	1/10 "	1/2 "

Eighty pounds of bread were produced from an artaba of wheat. From the prices of the various commodities given in the document the annona of the Scythian for a year was about 9½ s. while that of the *σύμμαχοι* was approximately 5½ s. There was also an allowance of 100 lbs. of wood (*κεντηνάριον*) per day for the soldiers and 200 for the *σύμμαχοι*. The only evidence for the capitum is one aroura of hay, but there is no indication of the number of animals.

Another document[55] which seems to be the contemporary gives the annonae of a military detachment as follows:

	Bread	Meat	Oil	Wine
Cancellarius etc.	3 lbs.	1 lb.	1/10 sest.	2 sest.[56]
Scythian	3 "	2 "	1/8 "	2 "
Bucellarii	3 "	2 "	1/8 "	2 "
Tribune	3 silignia	4 "	1 "	8 "

In addition the tribune received 2 fowl and 100 lbs. of wood while each of the others was allowed 2 lbs. of wood daily. Four boys (*παιδάρια*) with the tribune received the same food allowance as the Scythians, while four others attending the Scythians received each 3 lbs. of bread, 1 lb. of meat, 1 sestarius of wine and an eighth of olive oil. The account of the *verso* mentions explicitly the annonae and capita. The annonae as above were allowed to the cancellarius (with the cursor and 2 ostiarii), Scythians and bucellarii. 36 Scythians, however, were allowed 43 annonae, probably because some of them had extra grants as sesquiplicarii. Their seven contubernales were allowed 4 annonae while each of the 14 boys received half an annona. The 29 bucellarii were divided into seven groups (contubernales of Zemarchus (7), Boraides (4), George (2), Paul (6), Jordanes (2), Alexander (4), Martin (1), Cyricus (3)) and they were allowed 30 annonae while the boys received half an annona each.

The value of the annona, assuming that the prices of food, wine,

[55] P.O. 2046 (A.D. 561, Epiph 4). The rations may have varied slightly with the season. P.O. 1920 is dated Mechir 2-13. In P.O. 1903 the bucellarii in Phamenoth received 1 lb. of meat daily. One would expect the heavier meat ration in mid winter.

[56] Assuming that the diploun held 8 sestarii. But see editors' note on P.O. 1920, line 5.

and oil are the same as in P.O. 1920, amounts to $11\frac{5}{6}$ s. per year. Adding in the allowance of two pounds of wood per day would bring the total to approximately 12 solidi a year.

The evidence for the capita is somewhat confused. The account on the *verso* for Pauni 24 gives 36 Scythians, 14 boys and 7 contubernales who were allowed 54 annonae and 50 capita. The capita total 200 choenices of barley (5 art.) and 8 camel loads of hay. The 29 bucellarii received 30 annonae and 27 capita. The latter total 108 choenices of barley and $4\frac{1}{2}$ camel loads of hay. In other words each capitum consisted of 4 choenices of barley and approximately one-sixth of a camel load of hay. On the account given for Epiph 4 (on the *recto*), there were 26 bucellarii, 14 Scythians, the tribune and 4 boys. The total allowance for fodder was 76 choenices of barley and 3 camel loads of hay. On Epiph 5 the allowance of barley to 26 bucellarii was 68 choenices. None was allotted to the 14 Scythians but a new group of 20 Scythians received 40 choenices of barley while the tribune received 16 choenices. In the total for the day 6 camel loads of hay were entered after the barley. If the tribune was allowed 4 capita he would receive 16 choenices of barley and two-thirds of a camel load of hay daily, but this leaves the determination of the capita on Epiph 4-5 rather difficult. For 13 persons (Col. II) the allowance of barley was 36 choenices and $2\frac{1}{2}$ μούεια of hay. Presumably the 9 bucellarii were allowed capita, each of 4 choenices and $\frac{1}{4}$ μούειον of hay. The value of the capitum for a year is therefore $36\frac{1}{2}$ artabas of barley and 90 μούεια or 60 camel loads of hay. When chaff was used as food for camels the allowance was 2 lbs. per day.[57]

In the diocese of Africa Justinian fixed the value of the annona at 5 solidi and the capitum at 4 solidi in A. D. 534.[58] The evidence cited above would indicate that the annona in Egypt was worth approximately 12 solidi. The value of the capitum is less easy to determine and evidently was a variable quantity. In P.O. 1920 the number of mounts is unknown and they were given only hay (an aroura per day, each aroura valued at one solidus). In P.O. 2046, barley and hay were distributed. If 4 choenices were distributed every day for a year the value of the barley would be between 3-4 s. The value of the hay is impossible to determine with the present evidence.

Other papyri add little to supplement the information given above. In A. D. 586 Apion sent a troop of his private guard perhaps to aid in the collection of taxes on one of his properties.[59] For eight days

[57] P.O. 43.

[58] C. J. i. 27. 1.

[59] P.O. 2196 (A. D. 586). This assumes that the diploun of wine held 6 sestarii. The capacity of this measure varied.

they were supplied 150 lbs. of bread, 17 dipla of wine, 50 lbs. of meat and $6\frac{1}{4}$ sestarii of oil daily. Apparently the troops numbered fifty and the daily ration was 3 lbs. of bread, 2 sestarii of wine, an eighth of a sestarius of oil and 1 lb. of meat. The value of the annona was 3 folles per day. Another document gives 12 annonae as 4 artabas of wheat (320 lbs. of bread), $1\frac{1}{3}$ cnidia of wine, 12 measures each of sour wine and oil.[60]

The annonae and capita of officials in Africa were established by a constitution of Justinian in A. D. 534.[61] In Edict XIII the new Augustalis was allowed 40 pounds of gold (2880 solidi) together with the usual gratuities (*συνήθειαι*) and calandica in lieu of the 50 annonae and capita previously allowed.[62] Whether the regulations of Justinian in this edict and in Novel VIII indicate that salaries were hereafter to be paid in gold instead of money is doubtful. Obviously the allowance of 9 s. a year allowed for the chartularii in the Novel is much less than the value of the annona granted to the soldier. The accounts of Aphrodito show that small amounts were spent on occasion for fowl, eggs, wine and oil, presumably for the entertainment of visiting officials but the only evidence for payments in kind for officials comes from the Thebaid.[63] Here the estate of Olybrius had to pay, apparently as a penalty, large sums of wheat, barley, wine-meat, and chaff as the annona of the Duke, Princeps, and bureaus.[64]

It is impossible to determine the cost of army or bureaucracy in Egypt. Maspero is undoubtedly correct in his assumption that the military force in Egypt at the time of the Arab conquest was small, probably not more than 500 numeri in each pagarchy with perhaps some reserves at strategic points such as Alexandria, Babylo, and Syene. The annonae of 20,000 men would cost about 240,000 s. annually without allowance for officers. The capita probably varied according to the mounts (horses, camels, mules, asses), and may have varied according to season. The number of mounted troops was probably small.

[60] Kl. Form. 978. In P.O. 1888 (A. D. 488) soldiers received 4 lbs. of bread. Ration of 1 lb. of pork daily to bucellarii P.O. 2013. Cf. P.O. 2047 for food to two singularii; P. Rendell Harris 91, 4 lbs. of bread and one of meat daily.

[61] C. J. i. 27. 1, cf. Nov. xiii of Valentinian iii (A. D. 445) for annonae of Numidia.

[62] According to the estimate given above the 50 annonae would be worth about 600 s. and the 50 capita probably not more than 500 s. The duke of Libya received 40 annonae and 40 capita under Anastasius (SEG. ix. 356). The text of Justinian's Edict xiii is hopelessly confused in determining his salary (c. 18). It seems to speak of 90 annonae and 125 capita in kind valued at $1005\frac{1}{4}$ s. and 50 annonae and capita in gold valued at 400 s.

[63] For gratuities allowed see Fees and Perquisites.

[64] P. Flor. 377. See Estates.

The cost of the bureaucracy is difficult to determine. Justinian allowed for the Augustalis, his assessors, and bureau 4240 solidi in gold.[65] It is obvious that the 600 members of the bureau could not exist on a total grant of 1000 s. Whether they were allowed an annona and whether this was on the same basis as the military annona is unknown. Still less is known of the requirements of the staffs of the civil and military governors of the provinces. The oft quoted register of Antaeopolis gives the allowance in gold for the officials of the pagarchy and this may represent the administrative cost of the average pagarchy of the period.

[65] Edict xiii. The annona granted to Claudian (SHA. Claudian 14-5) is said to be the same as that of the prefect of Egypt. The unreliability of the Scriptores makes the value of their testimony of little worth but this account may reflect the general value of annonae by higher officials in the fourth century or whenever this account was written.

V. TAXATION

1. TAXES IN KIND

FOR the earlier period of Diocletian's reign little is known of the system of taxation. After the suppression of the revolt of Achilleus he instituted many reforms of which some were more or less permanent. In the year 297 he called for a complete census of the land and people of Egypt and apparently prescribed a schedule of taxation for both.[1] The edict reads as follows:

" Aristius Optatus the most perfect Prefect of Egypt says:

" Our most provident Emperors Diocletian and Maximian, the Augusti, and Constantius and Maximian, the most noble Caesars, having learned how . . . it has been happening that the levies of the public taxes take place in such a way that some persons are being alleviated but others are being overburdened, have determined to root out this most evil and ruinous practice in the interest of their provincials and to give a saving norm to which the taxes shall conform.

" Therefore I have publicly set forth the quota of each aroura with respect to the quality of the soil, and the quota of each head of the agrarian population and the minimum and maximum ages of liability in accordance with the published divine edict and the breviary included in it, and issued the copies of this my edict.

" It behooves all to . . . ; accordingly let the provincials, seeing that in this also they have received the greatest benefits, take care to make their contributions with all speed in accordance with the divinely appointed regulations and not . . . wait for the constraint of compulsion, since it is a matter of devotion for each one to fulfill all his obligations with the greatest zeal, for if any should be detected doing otherwise after such beneficence as this, he will risk punishment.

" And the magistrates and the presidents of the councils of each city have been appointed to dispatch to each village and every topos the copy of both of the divine edict with the breviary and also of this (edict) besides, to the end that the munificence of our Emperors and Caesars may speedily come to the knowledge of all.

[1] Boak, Études de papyrologie ii (1933), 7 ff.

" But let the collectors of each kind of tax also remember to be on their guard to the best of their ability, for if any should be detected in disobedience, he will be in danger of capital punishment.

" The thirteenth, twelfth, and sixth year of our lords Diocletian and Maximian Augusti and Constantius and Maximian most noble Caesars, Phamenoth 20."

The schedule accompanying this edict is lost and its content can only be conjectured. This much we know with certainty. The unit of taxation for Egypt had been the aroura. There was no change in this respect by Diocletian and this continued to be the taxing unit until the Arab period.[2] There is no evidence that Diocletian changed the old classifications of land for these remained in use at least until the reign of Constantine. The edict, however, promised to remove the inequalities of the old system. In spite of lack of direct evidence we believe that a uniform tax per aroura was established. For this reason the maintenance of the old classifications was no longer necessary and they were abolished by Constantine or by his immediate successors. The quality (ποιότης) of the arable land was the determining factor and probably the tax register of Antaeopolis, though more than two centuries later than this edict, illustrates his meaning. Here the land was classified as arable, reed-marsh, vineyard, and garden. On the first three groups a uniform tax in wheat was imposed, and there is no reason to believe that the system of Diocletian was different. Whether this uniformity extended to all Egypt or varied from nome to nome cannot be determined.[3]

The year in which this edict was promulgated also marked the introduction of a five-year indiction cycle. In A. D. 312 this was changed to a cycle of fifteen years.[4] Presumably the rate of taxation was intended to be uniform throughout the cycle. However Egypt depended greatly on the height of the Nile flood and the rate of taxation had been determined in the past by this factor.[5] It is not likely that Diocletian would act otherwise, nor is it probable that he set a rate sufficiently low to take care of poor floods, leaving the peasant free to enjoy the profit from a bumper crop. In addition to

[2] See p. 236.

[3] P. Cairo 67057. In SPP. x. 189 the quality of the land is private, public, highland (presumably land along the river bank artificially irrigated and able to produce more than one crop), and island. A tax for transportation imposed in A. D. 316 (P.O. 2113) was 50 Attic drachmas per ar. of arable land, 100 dr. per ar. of pasture land, and 2 dr. for each olive tree.

[4] Kase, *Papyrus Roll*, 25 ff.

[5] See edict of Tiberius Julius Alexander.

the tax in kind, we find in the sixth century that land paid a tax in gold. There is some probability that this was begun by Diocletian.[6]

It is probable that the anarchy of the third century had had its repercussions in Egypt and that property records were far from accurate or complete. Diocletian took steps to have a complete census of the country, appointing censitors for each nome. This took time, since the survey included land as well as people. A declaration of a citizen in A. D. 310 implies that the census of the people was not complete by that time.[7]

The earliest evidence for taxation in the fourth century comes from an estate in Hermopolis.[8] This was a property scattered through seven villages and held by two brothers and a sister. The payments of wheat were small and probably the total area was not very great. Arrears were evidently commuted for money, and an assessment for meat and chaff, presumably for the army, was paid once in money.

In A. D. 306 a sale of catoecic land specified that the buyer should pay the public taxes, assessments and all canonic payments for the annona and other charges (*δημόσια καὶ ἐπιμερισμοὶ καὶ ἀννωνικαὶ ἐπιβολαὶ παντοίων κανονικῶν καὶ ἄλλων*).[9] The assessments were made in money or in kind.[10]

An estate at Philadelphia preserved a record of payments from A. D. 310-24.[11] These may be summarized as follows:

DATE	WHEAT	BARLEY	MONEY
310/1	75½	71½	5,152 dr. for wheat
311/2	93½	53⅓	300 dr. for barley (paid in 314)
			2 T. 55 den. for barley (paid in 316)
			990 den. for grain(?) (" " ")
			1,193 den. for grain(?) (" " ")
			992 den. for chaff (" " ")
			7,760 dr. *delegatio* (III., 1-5) [12]
			4,120 dr. *delegatio* (III, 6)
312/3	93¼	36	32,200 dr. for barley
			11,960 dr. *delegatio* [12]
313/4	51^{7}/$_{12}$	31½	
314/5	54	32⅓	2 T. *delegatio* [12]
			17 T. for price of wheat
			5 T. for price of barley

[6] See Gold Taxes on Land.
[7] See Land Declarations.
[8] P. Leipz. 84 (A. D. 301-5).
[9] P. Leipz. 6, cf. P.O. 71.
[10] See Assessments.
[11] Kase, Papyrus Roll.
[12] The restoration *διατύπωσις* is due to a suggestion by Mr. E. B. Turner.

DATE	WHEAT	BARLEY	MONEY
315/6	53	33	5,000 dr. for price of wheat
316/7	54	$34\frac{5}{12}$	3 T. 500 den. for freight
317/8	54	33	
318/9	54	33	
319/20	4[ ]	0	
320/1	5[ ]	0	
321/2	33	14	
322/3	4[ ]	0	
323/4	47 [13]	22	

The only clue to the area of the property is the tax for *πλοίων θαλασσίων* in A. D. 316.[14] This implies an area of 100 ar. arable land. If this is correct, the tax for the period A. D. 313-318 was less than an artaba of grain (wheat and barley) per ar. After A. D. 318 there seems to be either a smaller holding in the estate or a decrease in tax. Prior to A. D. 312 the tax rate was apparently higher and in A. D. 311/2 there were evidently extra assessments which were not fully discharged until five years later.

Beginning with the indiction cycle of A. D. 312 there was evidently an attempt to distinguish between payments made by metropolitans or villagers.[15] The reason for this distinction is unknown.

The tradition about Constantine varies. According to Eusebius this emperor remitted a fourth of the tax on land and appointed commissioners to equalize the taxes. Possibly this was the remission ascribed to the Vicennalia in A. D. 325 and apparently only for the year. Zosimus states that Constantine wasted money on useless buildings which he afterwards destroyed, that he imposed such severe taxes that fathers were compelled to prostitute their daughters and that whole villages were destroyed.[16] Soon after the foundation of Constantinople, corn was distributed there as it had been in Rome. This began in A. D. 332; and Eunapius, the author of the life of Sopates, wrote that not even the multitude of ships from Egypt, Asia, Syria, Phoenicia and all other nations was able to supply the drunken rabble transferred to Constantinople from other cities.[17]

[13] In addition 6½ artabas were paid *ὑπὲρ ἀπόρων ὀνομάτων* and 6 artabas *ὑπὲρ ἐπιβολῆς καὶ ὑπερησίου* (probably *σιτερησίου* for *σιτηρεσίου* as in P. Leipz. 84).

[14] See note 3.

[15] P. Strass. 45; Harv. St. li (1941), p. 49; PSI. 1038. In the sixth century Aphrodito had the right to collect its own taxes (autopragia) and residents were careful to distinguish between the property which lay within the village and that in the domain of Antaeopolis proper.

[16] Eusebius, Life of Constantine iv, 2-3; Zosimus ii. 39. For the Vicennalia see Chronicon Paschale.

[17] Chronicon Paschale sets the date.

It is probable that the corn from Egypt was gradually diverted to Constantinople as the new city grew in population and that Rome was supplied from the western provinces as her population declined. The only evidence for the amount supplied to Constantinople comes from Socrates who, in speaking of the riots of A. D. 342, states that Constantius withdrew over 40,000 units of the daily bread allowance (σιτηρεσίου ἡμερεσίου) of the 80,000 units which Constantine had brought from Alexandria and bestowed on the people.[18] Socrates gives no clue as to the units, but Photius, in his biography of Paul of Constantinople, says that 80,000 loaves of bread were distributed daily. Probably by loaves Photius means daily rations. From the Egyptian evidence we know that an Egyptian artaba of wheat yielded 80 lbs. of bread and that the soldier's ration was three pounds daily.[19] If, therefore, 80,000 rations of bread were distributed daily at Constantinople this would require 3,000 artabas daily or 1,095,000 artabas per year for the dole. On the other hand, if we regard the 80,000 units of Socrates as modii, this amount would feed a population of 640,000 daily, and it is quite unlikely that the population of Constantinople had grown to this extent so soon after its foundation.

Since Constantine allowed 4% of the cargo to the ship owners for the cost of transportation from Alexandria to Constantinople, the amount of the annona required in A. D. 342 would be approximately 1,140,000 artabas yearly on the assumption that 80,000 people received three pounds of bread daily. If we assume that 80,000 modii of wheat were distributed daily the annual shipments from Egypt would be nearly 9 million artabas. Augustus is said to have derived 20 million modii (6 million artabas) from Egypt.

In the present state of our information it is impossible to say what revenue was derived from Egypt. The annona of Constantinople was undoubtedly a charge on Egypt. Alexandria was given an annual allowance for its food. How much was required for military supplies outside Egypt cannot be determined. Probably only when troops were gathered for an eastern expedition would it be necessary to make special requisitions on Egypt. The legions in times of peace were probably supplied by the province in which they were stationed.

The evidence for taxation in the latter part of the fourth century is rare but rates seem to be low. A record of some farm for three successive years indicates an annual tax of 3 artabas of wheat, $1\frac{1}{3}$ of barley and an *epibole* (?) of $1\frac{1}{3}$ artaba yearly.[20] A register of land

[18] Hist. Eccl. ii. 13.

[19] See Annona of army.

[20] SPP. xx. 93 (334 or 349 or 364). Cf. PRG. v. 58 (IV).

gives four classifications: private land paying half an artaba per ar., public land 1½ art., main land 2½ art., and island 4½ artabas.[21] A list from Philadelphia shows payments varying from a sixth to a half an artaba per person, but this may be a special assessment.[22] From Memphis comes a list of payments from villages for κανονικά and supplements (προσθέματα). Although no areas are given the canonica do not seem to be high.[23]

In A. D. 392 Theodosius added 125 modii daily to the annona of Constantinople.[24] This added about 15,000 artabas annually to the dole and since Justinian retained this Constitution in his code there was presumably no change in the annona of the capital between 392 and 534.

The annona of Alexandria was increased by 110 modii daily in A. D. 436 and presumably the distribution for this city remained at the increased rate until the time of Justinian.[25] The addition of 13,000 artabas was a small amount if equally distributed over the whole area.

A special appropriation of 500 pounds of gold was made in A. D. 409 for the purchase of wheat.[26] This was presumably for some special emergency. In A. D. 434 the sum of 611 pounds of gold was set aside in perpetuity for the purchase of grain for the annona of Constantinople. Justinian incorporated the latter constitution but did not specify any definite sum.[27] This gold would purchase about half a million artabas at the average price of wheat during the sixth century. The setting aside of this amount in A. D. 434 probably implies that some extension of the annona had been made (about 1200 artabas daily) sufficient to take care of 32,000 people.

The fifth century is almost a complete blank so far as tax registers are concerned. A document in the Princeton collection belongs to the late fourth or fifth century.[28] The tax seems to be levied on only parts of the listed properties and it is impossible to determine the reason. The land may have been held in partnership but two of the

[21] SPP. x. 189; PRG. v. 58; P. Flor. 64.

[22] BGU. 1719. In P. Goodspeed 42 (A. D. 340) the units may represent the number of capita for which each person is responsible. See also BGU. 21.

[23] P. Lond. 99.

[24] C. J. xi. 25. 2.

[25] C. J. xi. 28. 2.

[26] C. Th. xiv. 16. 1.

[27] C. Th. xiv. 16. 3; C. J. xi. 24. 2. The price of grain seems to hold fairly steadily at about 10 artabas per solidus (see Prices). It is noteworthy that the emperor set aside this money for purchase of grain and did not attempt to increase the tribute.

[28] P. Princeton 136. We owe to Mr. H. I. Bell the date of this document based on the character of the writing.

larger properties paid a tax on a tenth of the area while others paid for an eighth or a half of the whole. The rate per aroura was not constant, varying from six to seven artabas. Land in hay paid a tax of 15 c. per ar. or 2 art. of wheat or barley; in one case the tax was 7 art. of wheat with the usual supplements. The tax on flax varied: 12, 14, or 17 bundles of flax per ar. Against this comparatively high rate may be set the tax found in a sale of land which the editors have dated provisionally in the fifth century.[29] The readings are not certain but the contract calls upon the purchaser to pay on this 1¼ ar. an annual *ὑπερτελές* of 3000 T. of silver, 3 art. of wheat and 16 art. of barley, and then adds a supertax (*ὑπερτελέσαι*) annually of 650½ T. of silver, ½ art. of wheat, and ¼ art. of barley. Possibly the first tax mentioned is an accumulation of arrears which the purchaser had to clear off, and the "supertax" was the annual tax.

In the sixth century there is more definite information about taxation. In his Edict xiii, Justinian complained of the disordered condition of Egyptian finance. The collection of the tribute had become a source of profit not only to pagarchs, curiales, and collectors, but also to the prefects as well. No one knew how much tribute was actually collected. According to this edict the tribute in grain was set at 8 million units, presumably artabae. This amount of wheat would be sufficient to supply approximately 600,000 people daily, allowing three pounds of *panis castrensis* to each person. It is, of course, unlikely that so many were supplied with free grain at this time, but the government undoubtedly derived revenue from the sale of part of the tribute.

A tax register of Antaeopolis mentions the new administration (*νέα διοίκησις*) and may be contemporary with Justinian's reforms in Egypt.[30] The unit of taxation was the aroura, and a uniform rate was imposed: 1¼ art. on arable land; 2¾0 art. on marshland, and 7/12 art. on vineyard. Extra charges were not recorded on this register, but they may have been collected, and since they were for the benefit of the collector, they did not appear in the account. If this rate of taxation was imposed on arable land throughout Egypt, the tribute of 8 million artabae would require an area of 6,400,000 arouras of arable land. This is not an unreasonable area for that period.[31]

[29] PSI. 66.

[30] P. Cairo 67057.

[31] The estimation of arable land in ancient times is largely guess work. Barois (Irrigation in Egypt, English translation by Miller, 1889) gives the surveyed area of Egypt, not including the lakes in the Northern Delta (400,000 hectares) as 2,145,000 hectares, and gives the total area of the country in 1882, including uncultivated lands, marshes, etc.,

Procopius says that Hephaestus took away the allowance of two million medimni for Alexandria and added it to the imperial revenue.[32] It is impossible that the allowance for the city should have been so great at this time; and in Edict xiii Justinian allows an appropriation for transport of the annona as had been customary in the past. The statement of Procopius is probably false. At the beginning of the seventh century John the Almoner could find only 7,500 in Alexandria who needed charity.[33]

We have already cited the register of Antaeopolis as giving a uniform rate of $1\frac{1}{4}$ art. per aroura for arable land. A sale of land at Aphrodito was made on condition that the purchaser discharge the taxes on another lot of 14 ar. belonging to the vendor, namely, 4 s. and 18 art. of wheat.[34] Here the rate of the tax in kind is a close approximation to the rate at Antaeopolis. A sale of land at Hermopolis (?), apparently dated when Dioscurus was in exile, indicates that the annual tax on half an aroura was $1\frac{1}{2}$ c. in gold and half an artaba of wheat (with the usual supplements) annually. This was presumably arable land, and, if so, the rate of taxation in the Hermopolite nome was not uniform with that of Antaeopolis. In the Fayum, the tax on 2 ar. seems to be one solidus and 3 art. of wheat.[35]

The delegatio of Aphrodito varied from year to year and evidently the rate depended somewhat on the variations of the flood level, since it is unlikely that the area of arable land would vary materially.[36] The accounts of estates at Oxyrhynchus seldom give any indication of the area or rate of taxation per aroura. Such evidence as there is does not indicate a heavy tax.[37]

The emperor Tiberius gave a remission of a year's tribute which was spread through four years (9-12) of the indiction cycle.[38] This

as about 3 million hectares (p. 12), but on p. 32 he gives the total area capable of cultivation at that time at 1,320,000 hectares. If Justinian found 6,400,000 arouras of arable land, this would be about 1,763,840 hectares. If the lakes in the Northern Delta were drained at that time, the arable land would correspond.

[32] Anecdota xxvi. 43.

[33] Leontius of Naples, c. 2.

[34] P. Lond. 1686.

[35] P. Cairo 67169. For the tax in the Arsinoite nome see SPP. xx. 160.

[36] 5759 artabas P. Flor. 292 (7th indiction).
4880 " P. Flor. 293 (8th indiction).
6053 " P. Cairo 67030 (13th indiction, A. D. 531?).
6100 " P. Cairo 67280 (2nd indiction).
In all these, except that of the 7th indiction, the village was required to provide a *proedros* and an *epimeletes*. In P. Cairo 67286, 5759 artabas were sent to the monastery of Metanoia for the 6th indiction, and the same amount in the 7th indiction apparently in lieu of tax to Constantinople.

[37] See Taxes on Estates.

[38] (Justinian) Novella 163 (A. D. 575): cf. P.O. 1907.

rebate is mentioned in a document from Oxyrhynchus and may belong to this period. Mauricius (A. D. 582-602) is said to have sold all the grain of Egypt and converted it into gold. This included the annona for Constantinople.[39] Frequent conversions of the *embole* to gold may belong to this period.[40] The assessment of 350,000 artabas on Heracleopolis and on Oxyrhynchus (with Cynopolis) and 10,000 artabas for Nilopolis was so converted. The tax in gold was approximately a third less than the value of the wheat.

Hay land was taxed in money or in grain. Possibly the tax *ὑπὲρ ξηρ( )* at Oxyrhynchus was a requisition for dried hay which could be commuted in wheat or money.[41]

At Antaeopolis the tax on marsh land (*θρυίτιδος*) was $^{2}3/40$ artabas per aroura. Whether there was also a tax in money cannot be determined.

Vineyards at Antaeopolis were taxed at the rate of 7/12 artaba of wheat per ar.[42] Wheat could not be raised in vineyards in full bearing, and the tax on marsh and vineyard was probably designed to be commuted into money. Requisitions of wine for the army were levied at times. The land called *παράδεισος* in the Antaeopolis register paid no tax in wheat, but an owner of an apple orchard is once listed as paying a small tax.[43]

Aurelian is said to have imposed taxes in kind on paper, glass, linen and hemp for the benefit of Rome and also anabolicae species aeternae. Wallace suggests that the anabolicae species were levied to supply Roman armies and that the right to commute these was denied.[44]

In the third century land in flax had been taxed at the rate of 14 pounds per aroura. The only rate known in the Byzantine period was 14-17 bundles per aroura.[45] The *ἀποδεκταὶ λίνου* were presumably connected with military supplies, and garments, or their equivalent in money, were frequently collected for this purpose. In A. D. 359 an assessment at Oxyrhynchus for the *ἀναβολικόν* was 600,000 den. per caput, for transport 250,000 den. and for *τριμιτάριον* 750,000 den. There was also assessment for $2\frac{2}{3}$ bundles of hemp. The *πραγματευτὴς*

[39] John of Nikiou 95, 21. The same author (109, 21) says that Nicetas lightened taxes for three years at the beginning of Heraclius' reign.

[40] P.O. 1909, cf. 1907V, 2022, 2023. See Prices.

[41] P.O. 1908, cf. P. Lond. 1674.

[42] P. Cairo 67057. Wine was requisitioned for soldiers. See Military Annona.

[43] SB. 4885.

[44] Script. Hist. Aug., Aurelian 45; Wallace, Taxation, 214.

[45] PSI. 779; P. Princeton 136. In SB. 7175 the weight of a bundle is given as 5 lbs.

ὀθονιακοῦ seems to be an official in charge of fine weaving, perhaps in a government workshop.[46]

Glass is not mentioned in the papyri as a tax in kind. Nothing is known of the tax on papyrus in the Byzantine period. The horrea chartaria of Rome imply that such a tax was levied and these storerooms served as distribution centers for the West.[47]

Wool, woad, and balsam were evidently taxed at Oxyrhynchus, and for the latter money was accepted (ὑπὲρ τιμῆς βαρσάμου).[48] The tax μικρῶν εἰδῶν at Antaeopolis probably denotes a commutation for goods paid in kind.[49] Wool was collected at Theadelphia and Caranis, and the reading ἐρέας in the tax register of Antaeopolis is probably a commutation for a tax on wool, although Maspero suggests that it should be read as a tax on olives.[50] Possibly the abbreviation πο( ) in P. London 1718 and P. Princeton 135 should be restored as πό(κων) or a tax on fleeces. The shepherd's guild at Aphrodito paid fairly large sums in gold, and payments for shepherds and wool are found in the village accounts.[51] Fowl and eggs were also provided in these accounts, presumably for the entertainment of officials and not a regular tax. Dioscurus evidently owned flocks, and grazing was an important industry in this village.[52]

Hides were probably a special requisition. Thus payments for a hide (τιμὴ βύρσης) and for goat skins at Oxyrhynchus were probably commutations for a military requisition.[53] For military requisitions see p. 218.

We have given the most important evidence for the taxes in kind during the Byzantine period. It seems certain that Diocletian proposed to establish some uniformity in the rates, but whether these rates varied in different districts cannot be determined. The aroura was the unit for the land tax and the evidence implies a tax in kind as well as in money. In the sixth century the tax rate at Antaeopolis was low compared with known rates for the Roman period. Since the delegatio varied from year to year at Aphrodito, it would seem that the variation was in some way determined by the height of the Nile flood. While supplementary taxes continued to be exacted, these seemingly paid the cost of collection and were not forwarded

[46] See Military Supplies and Miscellaneous Taxation.
[47] Lewis, *L'industrie du papyrus*, 141.
[48] P.O. 1052.
[49] P. Cairo 67057.
[50] *Ibid.*; P. Thead. 37 (A. D. 326); O. Mich. 255.
[51] P. Lond. 1671.
[52] P. Cairo. 67140-1, 67319.
[53] P.O. 2037.

to Alexandria.[54] In Edict xiii Justinian expected to collect 8 million artabae annually from all Egypt (except Mareotis and Menelais which were assigned for the support of Libya). This compares favorably with the 6 million artabae levied by Augustus. Since the evidence of the Antaeopolis register indicates an average rate seemingly lower than that of Roman times, we must conclude that the area of arable land had increased in the interval. In addition to the tax in kind, the peasant paid a tax in gold on his land and was subject to numerous assessments for military supplies, salaries of officials and miscellaneous items such as are shown in the registers of Aphrodito and Antaeopolis. This constant drain of gold indicates that he must have had a reasonable surplus for sale after providing for living, seed, and taxes in kind. Even though he may have complained of exactions by tax collectors and officials, the peasant's lot in the Byzantine age was probably better than in any period of history. At least the evidence shows that the rate of taxation was the same for all, and the chief privilege enjoyed by landed proprietors such as Apion was that of collecting the taxes on their own estates without the intervention of imperial officials. That their tax rate was less than others, there is no evidence whatsoever.[55]

2. EXTRA CHARGES ON TAXES IN KIND

Augustus had imposed an extra charge on the payments in wheat called the *προσμετρούμενον*. This varied in different districts and on different classifications of land. In the course of Roman rule various other supplements appeared and some of the registers of the Fayum reveal a system of vexatious charges which must have been a burden to the peasant.[1]

When Diocletian simplified the tax structure in Egypt, he seems to have abolished the former supercharges in their old form for they are no longer found. However, the supercharges did not disappear entirely and the slight evidence we possess for the fourth century shows that similar variations in different districts were continued.

At Hermopolis a series of receipts shows that a tax of 1% (*σὺν ρ′*) was collected on wheat. As we shall see below, it may be questioned whether this means exactly what it says, and it is quite possible that more than one percent was exacted.[2]

[54] See Supplementary Taxes.
[55] See Taxes on Estates.
[1] Wallace, Taxation, 38; Kalén, Berliner Leihgabe, 67.
[2] P. Leipz. 84 (A.D. 301-4).

At the villages of Tanis and Theadelphia in the Fayum the sitologi collected wheat with an extra charge of 10% (*σὺν δεκάταις*). No mention of this charge was made in payments of barley which were usually recorded with the entry (*ἀν' ἀμείψεως*). The fee of a denarius per modius collected on wheat by the sitologi was presumably a fee for the captains (cf. a similar fee mentioned in Diocletian's edict for transport downstream, TAPA. lxxi, p. 165).[3] At Caranis the apodectes of barley, apparently receiving military requisitions at the harbor of Cerce from the sitologi, acknowledges the receipt of the barley with the 10% ordered by the canon. On this total there was also an extra charge of 5% received at the harbor. In addition the apodectes received 5½ denarii per artaba for naulage and the extra fee of a denarius per modius. Certain of these shipments of barley record only a charge of 2% with or without the 5½ denarii per artaba for naulage (Cairo, Journal d'entrée, no. 57394 to be published by Professor Boak in Ét. d. papyrologie). In Michigan papyrus (inv. no. 5262) a cargo of 200 artabas takes an additional 20 artabas for naulage. This is evidently an addition of 10%, but whether the same charge of 10% found in other documents is to be regarded as a charge for transportation is unlikely. A series of ostraca from Caranis dating from the late third or early fourth century indicate payments of wheat with a supercharge of five percent and generally add that the payment was made without freightage (*χωρὶς ναυλεπλοίου*).[4]

A sale of catoecic land at Hermopolis in A. D. 320 transferred to the purchaser all assessments (*ἐπιμερισμούς*) and supercharges (*ἐπιβολάς*) of all kinds. In the middle of the fourth century a register of taxes for three successive years shows that the estate paid 3 art. of wheat and 1⅔ art. of barley yearly with a payment designated as *ἐ*(*πιβολή?*) of 1⅓ art. of wheat.[5]

In a register from Memphis (?) there are payments of wheat from various villages with *προσθέματα*. The latter bear no relation to the original payments and probably imply some form of superindiction.[6]

There is reference to a supercharge (*προσθήκη*) at Hermopolis which may properly be included here. One of the tenants of Aurelia Charite was in arrears for the canonica, and evidently settled his tax by commuting the amount in money (*ἐξαργυρισμός*). For the 14th year of the indiction this was 13,600 dr. on which there was a

[3] Kase, Papyrus Roll.

[4] P. Mich. 399-411; 416-7; see Transportation.

[5] P. Leipz. 19; The *ἐπιβολή* is probably universal, though comparatively rare. See Kase, Papyrus Roll, and SPP. xx. 93.

[6] P. Lond. 99 (IV). Four villages pay canonica of 13, 34, 18, and 263 artabas. Their *προσθέματα* are 2, 74, 210, and 172 artabas.

προσθήκη (also commuted) of 3,200 dr. The προσθήκη is slightly over 25% and is probably a superindiction.[7] The tax of 20% (πέμπτη) in P. O. 1045 is regarded as doubtful.

Two documents from Hermopolis belong to the later period in the fourth century.[8] The captain acknowledges receipt of his cargo for Alexandria with naulage, cumuli, and porterage. This may be for the annona of Alexandria and hence would come under a different category. A charge of 16% is once found (SPP. xx. 246) for cleaning wheat (εἰς κάθαρσιν).

This is the rather limited evidence from the papyri of the fourth century. Still less is preserved from the fifth century. A document whose provenience is unknown and whose date can only be determined on palaeographical evidence seems to belong to the fifth century.[9] Here the supercharge on payments of wheat and barley is called one percent (σὺν ρ΄) but a calculation of the payments shows that the actual rate is ten percent. The tax on flax was five percent (σὺν κ΄). A fragmentary letter dated in the fourth century mentions a payment of 400 lbs. of some commodity for the tax of one percent (διὰ τὴν ἑκατοστήν).[10]

In the sixth century the evidence is much more abundant but the lack of exact dating in most tax accounts makes it impossible to determine the development, if any, of the system of supercharges. Frequently villages and estates enjoyed the privilege of autopragia and in their tax returns the mention of supercharges is rare.

At Antaeopolis the great tax register which probably belongs to the beginning of the reign of Justinian gives the rate of taxation on the various categories of land, but no supercharges either for the canonica or annonica were entered. Apparently 759 artabas were collected in excess (πλεονασμός) of their delegatio but this sum bears no particular relation to the amount collected (62,443 art.).[11]

Aphrodito enjoyed the privilege of autopragia at least for a time. The evidence for the supercharges varies. A shipment of grain to the monastery of Metanoia is called the embole of the canon and was probably made in lieu of the regular payment to Alexandria. The receipt stated that the naulage, one, and five percents had been

[7] SPP. xx. 94 (A. D. 340). A similar use in the sixth century is found at Hermopolis in P. Lond. 1686, 1674, 1761; at Aphrodito P. Cairo 67169, 67325. προσμετρόυμενον seems to occur in P. Princeton 138.

[8] P. Goodspeed 14 (A. D. 343); P. Flor. 75 (A. D. 380).

[9] P. Princeton 136.

[10] PSI. 826. The sale of land recorded in PSI. 66 seems to record a supertax (ὑπερτελέσαι) in addition to the ordinary tax, but we may be dealing with arrears or a superindiction.

[11] P. Cairo 67057.

received.[12] A delegatio of the embole (ca. A. D. 531) ordered 2000 artabas out of the total of 6100 artabas to be loaded into small boats together with the five percents of the first and second year of the indiction.[13] In three other delegations there is no mention of percentages.[14] In two cases, however, it may be noted that the village was required to furnish a proedros, epimeletes, and sailors for the ships.[15]

The accounts of Ammonius make no mention of supercharges even in the case of a shipment to the monastery of Metanoia but in a receipt issued by the monastery the naulage, one, and five percents were acknowledged.[16]

A number of receipts from the Fayum indicate that payments of wheat were made with the supercharge of five percent (*σὺν εἰκοσταῖς*).[17] Another document, which the editor ascribes to the Fayum, gives a different picture of the supercharges.[18] Included in this return are the taxes from three different properties as follows:

	I	II	III
Tax	64¾ art.	34¾ art. 2 ch.	104¼ art. ⅔ ch.
Gratuity . ..	7 art. 6 ch.	2¾ art. 2 ch.	11 art.
Expense	1 art.	1 art.	1 art.
Messengers ..	½ art.	½ art.	½ art.
αμε( )	4 ch.	4 ch.	8 ch.
Measurer . .	¾ art.	—	1½ art.

The gratuity (*διάπεισμα*) in Col. I and III seems to be 11% of the total tax while in Col. II it is 8%. This probably went to some official, but whether it was part of the fee of the collector or a gratuity to the ship captain is unknown. The charges for expense [*ἀνάλωμα προ*( )] and for messengers seem to be a flat rate exacted from each tax unit without regard to the amount of tax. The restoration of *προ*( ) is unknown.[19] The small charge for messengers

[12] P. Cairo 67286 (A. D. 527-8). In P. Lond. 995-6; 1152, 1755-7, the receipts issued by the monastery to private individuals do not mention the five percents.

[13] P. Cairo 67280.

[14] See Taxes in Kind, note 36.

[15] P. Flor. 293; P. Cairo 67280. Whether *ναύτης* has the ordinary meaning of sailor may be questioned. Cf. The functions of Menas in P.O. 2023. For the *ἐπίπλοος* in the earlier period, cf. P. Grenf. ii. 46 (A. D. 139).

[16] P. Cairo 67138, 67347. See also note 12.

[17] Kl. Form. 458, 462, 475, 487, 495, 500, 502-3, 531; SPP. xx. 178, 200. The reading *σὺν εἰκοσταῖς ναύλου* in Kl. Form. 556, if correct, would indicate that the extra charge in the Fayum was for the cost of transportation to Alexandria.

[18] P. Lond. 63. The ascription to the Fayum is not certain.

[19] Possibly *πρόεδρος*, cf. P. Flor. 293.

(σύμμαχοι) is not found elsewhere and why messengers should be employed is unknown.[20] The fee of the measurer seems to be $\frac{3}{4}$ art. for units of 100 artabas or less but why it was not exacted in one case is unknown. The restoration of ἀμε( ) is uncertain. This also seems to be a flat rate of 4 choenices on all units up to 100 art.

From Hermopolis a sale of land in the sixth century transferred the taxes on the property which included the naulage, one, and five percents and all expenses to the purchaser. In the seventh century a register which presumably comes from a village of Hermopolis omits the five percents.[21] The accounts of Theodora give a record of taxes for four years.[22] This estate contained the *dorea* of Protamus at Pesla and a property in the village of Thalmoo. The annual tax on the latter was $104\frac{2}{3}$ art. of wheat with a supercharge of 8 artabas. Freight was paid on $104\frac{2}{3}$ art. only, and the implication is that the supercharge was the fee of the collector, measurer, etc.[23] Thus the eight artabas probably represent the one and five percents and general expenses. The apaetetae also collected 108 art. from this part of the estate, evidently a military requisition on which there was no supercharge. The tax on the *dorea* was $77\frac{1}{2}$ artabas yearly. On this there was no supercharge. Instead there was a deduction of 3 artabas each year and only $74\frac{1}{2}$ art. were actually paid.[24] There was no charge for freight and no military requisition from this part of the estate, and evidently the *dorea* enjoyed special privileges in taxation.

From Cynopolis there is preserved an account of an estate which is dated in the early sixth century.[25] Christodora seems to be part owner. The account is as follows:

Canon of year 1 of the indiction . .	9,930 art.	
Advance (προτέλεια) for year 2	20,248 "	
Freight (ναῦλον ?)	90 "	
Total		30,268 art.

[20] There is no evidence in the Byzantine period that samples of the cargo were sent to Alexandria but the messengers may have been employed for this purpose (Wilcken, Chr. 432).

[21] P. Cairo 67169; P. Lond. 1761. There seems to be a rebate of half the annual tax in this document. The supercharges appear to be called προσθέματα in the summary.

[22] P. Bad 95.

[23] The resolution of the abbreviation ἀθλ( ) καθ( ) is still unknown.

[24] Such deductions in accounts are unusual. If the *dorea* enjoyed the privilege of autopragia, the deduction may represent the cost of collection.

[25] P.O. 2026.

ἐξ ρ′ τῶν φακ( )		6,053½ art.
εἰδιωτικὰ ἀναλώματα (15th year) . . .	4,217 art.	
ἐξ ρ′ (or 15%)	632 13/24 art.	
Total		4,849 13/24 art.
GRAND TOTAL		41,170⅛ art.
The third (charged to Christodora?)		13,723 1/12 art.

The editors observe that many readings are doubtful, especially that for *ναῦλον*. There is no other example of this charge paid in kind and the rate is ridiculously low. The restoration of *φακ*( ) is unknown, but this amount is 20% of the preceding total. The *ἀναλώματα* for the 15th year may be arrears. The extra charge on this item was 15%.

In the pagarchy of Oxyrhynchus the supercharges vary considerably from village to village. The estates which had autopragia seldom mention them, and the rate of 15% used in converting from one system of measures to another is not to be regarded as an extra charge. However, there are two examples of conversion, one at 6%, one at 6½%, in which the expression *αἱ ῥυπαραί* is found,[26] This term originally described unclean wheat for which a penalty was imposed. In the sixth century at Oxyrhynchus it seems to mean wheat on which a supercharge has been collected. This is clear in the account of the village of Tacona where receipts of clean wheat were designated as *ῥυπαρόν* after extra charges were added.[27] The payments of wheat mentioned above with an extra charge of 6 and 6½% seem to be balances on hand after all taxes and expenses were paid and the amount with the surcharge was sold to the embolator. Who paid the extra charge and what its function was is uncertain.[28]

The accounts of a village dated in the sixth century are as follows:[29]

Embole (?)	317¾ art.	6 ch. chancery measure
Vicensimum (5%)	15 5/6 art.	
Total	333¾ art.	6 ch.
Supercharge (22%)	73½ art.	
Total	407¼ art.	
Gratuity (*διάπεισμα*) 7%	28½ art.	
Measurer	4¼ art.	
Total including supplements (*ῥυπαροῦ*)	440 art.	

[26] P.O. 1855, 1910, 2024, 2195 (lines 74, 96, 101, 121, 126. Many of these conversions are in rebates).

[27] P.O. 2021.

[28] P.O. 1911 (line 208), 1914. The supplement of 6% in P.O. 2037 seems to be different.

[29] P.O. 2022.

The total of 440 artabas is converted into money at the rate of $9\frac{1}{4}$ art. per s., a charge for μεταφορά of $30\frac{3}{4}$ c. is added, probably for transport of the $333\frac{3}{4}$ art. from the village to the Nile, and the cost of transporting this amount of grain at $32\frac{3}{4}$ c. per 100 artabas (?) seems to be reckoned in line 4 at $109\frac{3}{4}$ c., and in line 7 at $106\frac{1}{2}$ c. Evidently the embole and the 5% were forwarded to Alexandria and the other supercharges presumably went to the tax collectors. This account may represent the tax of a village not enjoying the privileges of autopragia. If so the burden of taxation was increased approximately thirty percent by the cost of collection.

The accounts of the village of Tacona are dated towards the end of the sixth century or the beginning of the seventh and presumably before the Arab conquest: [30]

Receipts in clean wheat	10,010 art.
Crithologia	925 "
For the meizoteros	50 "
For the measurer	92 "
Total of receipts in ῥυπαρός wheat	11,077 art. chancery measure

Expenditures are given as follows (all in σῖτος ῥυπαρός):

To the osprigites (presumably the embole) ..	7,004 art.
To the osprigites (for the ship)	$1{,}701\frac{3}{4}$ art.
Paid on the order of the Secretary of Sephtha	142 "
On account of the grooms of Tacona.	1,200 "

(The remainder of the account is lost.)

The payment for the meizoteros seems to be in the nature of salary or gratuity. The fee for the measurer is somewhat less than one per cent. The crithologia is not recorded elsewhere in the Byzantine papyri, but is mentioned in a constitution of A. D. 412 where it seems to be a civic liturgy at Alexandria in connection with the annona of the city.[31] The editors of this papyrus take it as a charge for cleaning, but the receipts are already stated to be clean wheat and this charge is extra. The total is given in ῥυπαρός wheat. The expenditures are equally difficult to understand. Presumably 7004 art. were forwarded to Alexandria, but whether as imperial tribute, or as annona for that city is unknown. The payment of $1701\frac{3}{4}$ for the ship (εἰς τὸ πλοῖον) can hardly be for transport as the amount is too great. The following payments (expressed by διά with the geni-

[30] P.O. 2021.

[31] C. Th. xiv. 26. 1 (A.D. 412). For κριθολογεῖν cf. P.O. 708 (A.D. 188).

tive) seem to be made *to* Sephtha and *to* the posting station at Tacona.[32]

Another account seems to be that of a superindiction imposed late in the sixth century.[33] A summary in lines 25 ff. is as follows:

Tax in wheat	66½ art. 4 ch.
Supplement (αἱ ῥυπαραί) at 6%	4 art.
Total	70½ art. 4 ch.
Measurer	½ art. 8 ch. (μέτρῳ)
Total	71¼ art. 2 ch.
Expense (ἀνάλωμα)	¾ art.
Total	72 art. 2 ch.

The fee of the measurer is one percent and the charge for expense is practically the same. The account thus far seems to be kept in an artaba of 40 choenices, but when the total is converted into the chancery measure (making 95 artabas 2 ch.) which elsewhere has 40 choenices, the difficulties of interpretation become more involved.[34]

Finally a tax account dated in the sixth or seventh century mentions payments to Menas, the catholicus, who may be the imperial agent in charge of the res privata.[35] The payments include those for the grooms at the posting station at Tacona, a payment of 1780 art. (ῥυπαραί) for the προσφορά of Alexandria and payments for the embole. On the two latter sums there appears to be a supplementary charge of 14% for the 14th and 15th year of the indiction, and in the first year of the following indiction an additional 7% was added to the embole. The receipts in this document appear to be calculated in the great chancery measure of 56 choenices while payments were made in the 40-choenix measure which was the usual standard for the tax payments in the sixth century.

On the private estates the tenants paid their tax usually in a measure of 46 (or 48) choenices. If Menas, the catholicus, was the collector of revenue on imperial estates, the tenants paid their rent in the great chancery measure which seems to have held 56 choenices. So far as can be determined these tenants paid no supplementary tax, and if any was paid to the state it seems to be made up from the difference between the receiving measure and the chancery measure, although in Apion's accounts there is frequent conversion from the

[32] The simple dative would be normal.
[33] P.O. 2037.
[34] For the measures employed, see discussion of Grenfell and Hunt *ad loc.*
[35] P.O. 1906. The account in P.O. 1997 is different. See also P.O. 1915.

receiving measure to the chancery measure as if the former were paid in its entirety to the state.[36]

The evidence in regard to the supercharges of the sixth century implies a great divergence of practice even in the same districts. In addition to the evidence cited above there are numerous documents where there is no evidence for any supercharge in kind at all.[37] The taxes imposed in money are discussed elsewhere.[38] Most of the supercharges seem to be costs of collection and presumably went to various officials.

In the collection of supplies for the army there is slight evidence of any supercharge except for some receipts at Caranis in the early fourth century (p. 241). Some ostraca from Caranis indicate a tax called ἀφυλισμός which Youtie has described as a tax on delivering wine with too high a percentage of impurities, and may have been imposed more in the nature of a penalty.[39] These ostraca are dated presumably in the reign of Diocletian. A mention of a charge of 1% is found in an account of the sixth century, but whether this was a tax is impossible to determine.[40]

Arrears in the payment of taxes in kind seem to be common enough, but there is only one case where a penalty seems to be attached. At Oxyrhynchus Menas, who is called ναύτης, received 121,614 artabas as arrears of years 5-8 inclusive.[41] Of this amount 115,576 art. were sold and 4,732 art. were credited to Menas as penalty (ὑπὲρ ζημίας). For the 9th year 33,372 art. were collected of which 21,358 artabas were sold to make up the total of 136,924 art., while Menas was paid 2,366 artabas (ὑπὲρ ζημίας) or exactly half the previous amount. The explanation of this account is by no means certain. The penalty bears no relation to the amount collected, and the reason for its payment to Menas is obscure. What is meant by making up the total of 136,924 art.?

We may include certain charges described in the Codes. These were presumably deducted from the payments after collection. There is no necessity that these charges were collected in Egypt unless it is so indicated in the constitution.

The grain delivered to Alexandria for the annona of that city was subject to a charge of 1% of which half went to the susceptores and half to the annotatores or other bureaucratic officials concerned in

[36] P.O. 2195 (line 75). See note 26.
[37] P.O. 1909, 1997.
[38] See Money taxes on land.
[39] TAPA. lxxi (1940). These may all precede the beginning of the first indiction.
[40] SPP. xx. 213.
[41] P.O. 2023 (VI).

the accounts.[42] There is no evidence of this charge in the papyri and since the constitution was not repeated in the Justinian code the practice was presumably changed. Whether the crithologia was a later reform is uncertain.[43]

The charge of 1% exacted from coloni of the res privata of the emperor was paid to the arcaria.[44] Whether this was in money or in grain is not clear. This constitution was not repeated by Justinian and the tax may have disappeared.

In A. D. 369 an imperial constitution permitted the susceptor to take 1% of the taxes in grain (aridi fructus) and 5% in wine and pork (laridum).[45] In A. D. 386 the law was revised and 2% was allowed for grain, and 2½% for barley, while the commission for wine and pork remained unchanged. This constitution was taken over by Justinian and evidently remained in force until that time.[46] No mention of this charge appears in Edict xiii and it may not have been collected in Egypt. Since there were two susceptores for each province, their income in the Egyptian provinces, if they were appointed for Egypt, must have made the position desirable.[47]

The ship captains who transported grain from Alexandria to Constantinople were allowed by Constantius 4% of the cargo and a solidus per 1000 modii in addition to other privileges.[48]

3. ALIMONIA OF EGYPTIAN CITIES AND CHURCHES

According to the Chronicon Paschale, Diocletian distributed the *panis castrensis* at Alexandria A. D. 302, and Procopius implies that Justinian approved the action of the Augustalis Hephaestus in adding the Alexandrian dole instituted by Diocletian to the imperial revenues.

Two receipts in the early part of the fourth century *ὑπὲρ σιτηρεσίου* may indicate assessments for this purpose.[1] In A. D. 327 the praepositus of the second pagus at Oxyrhynchus purchased grain for

[42] C. Th. xii. 6. 3, A. D. 349.

[43] See p. 250.

[44] C. Th. x. 1. 11, A. D. 367.

[45] C. Th. xii. 6. 15, A. D. 369. The tax of 1% found in papyri may be related. (SPP. xx. 213).

[46] C. Th. xii. 6. 21; C. J. x. 72. 9.

[47] C. Th. xii. 6. 30, A. D. 408; C. J. x. 72. 13.

[48] C. Th. xiii. 5. 7. These privileges were increased in A. D. 371 (C. Th. xiii. 5. 14). There is no evidence for the system prevailing later. In Edict xiii, Justinian made a sweeping change. See p. 155.

[1] P. Leipz. 84 (A. D. 301-6). Probable reading in Kase, Papyrus Roll. Col. xiv.

Alexandria and later presented his claim to the strategus to be recompensed.[2]

The overseers of the grain of Alexandria (ἐπιμεληταὶ σίτου Ἀλεξανδρείας) are first attested in A. D. 380.[3] At Hermopolis two senators had this liturgy in the north part (μέρις) and to these overseers the captain of a private ship acknowledged receipt of a total of 1463 art. for which he received the naulage, *cumuli* and pay for porterage.[4] The captain promised to deliver the grain at Neapolis and take receipts from the prefect of the annona (ἀννωνέπαρχος).

The prefect of the Alexandrian annona is first mentioned in A. D. 349.[5] Wilcken believed that his concern was only for the supply of Constantinople but the Augustalis was probably responsible for that duty. This was certainly the case under Justinian.

A constitution of A. D. 412, issued by Theodosius, confirmed the action of the praetorian prefect concerning the *crithologia* of Alexandria, the liturgy of weigh-master (*zygostasium*), and the safeguarding of the property of shipowners. The curiales of Alexandria were forbidden to have any concern in this matter which apparently they had used as a source of ill-gotten gain.[6] What is meant by crithologia is uncertain. It should mean "gathering of barley," but barley was only used as fodder. The word occurs once in papyri, where the editors regard it as a charge for cleaning wheat.[7]

In A. D. 436 Theodosius added 110 modii per day to the *alimonia* of Alexandria and ordained that the word *perissochoregia* should be abolished, that tokens be devised and bestowed in the name of the imperial *pietas* (nostrae pietatis censeantur).[8] The additional allowance provided sufficient food for about a thousand people. Since this constitution was taken over by Justinian, it was still considered valid.

The riots over the election of Proterius as bishop in A. D. 542 led the prefect Florus to withdraw the distributions. This withdrawal was probably only for a short time.[9]

According to Procopius, the Augustalis Hephaestus confiscated the *alimonia* of Alexandria which then amounted to 2,000,000

[2] PSI. 309 (A. D. 327). The total appears to be over 25 T.

[3] P. Flor. 75. See Wilcken, Grundz. 371.

[4] The same charges are found in P. Goodspeed 14 (A. D. 343), and the grain may be for the same destination.

[5] C. Th. xii. 6. 3. The fee of one percent is not clearly attested in Egyptian documents. See p. 248.

[6] C. Th. xiv. 26. 1.

[7] P.O. 2021 (VI/VII).

[8] C. Th. xiv. 26. 2. C. J. xi. 28. 2.

[9] Evagrius, H. E. ii. 5.

medimni and added it to the imperial revenue.[10] If this statement were to be accepted at its face value, this amount of grain would provide for a third of a million people annually, if the ration was that allowed the soldier. There is nothing in Edict xiii to indicate that the *alimonia* of Alexandria was stopped. Indeed an appropriation of 558½ solidi was directed to be paid over to the ἀποδέκτης ναύλων and this may have been intended to provide for the transportation of the *alimonia* down the Nile. Whether Hephaestus held office before or after the publication of Edict xiii it is impossible to say. The ναῦλον provided by this edict would be sufficient to transport from 75,000-83,775 artabas of wheat from Oxyrhynchus to Alexandria yearly. It might be a safe assumption that about 100,000 artabas were allowed annually which would provide for ca. 7300 people. Curiously enough when John the Almoner took the census of the city poor half a century later, the number was 7,500.[11] The biographer of John implies that the church discharged this service from its own resources and received no aid from the state.

The city of Alexandria requisitioned a workman from Theadelphia for a term of two months under the supervision of the overseers of baking.[12] Presumably the dole was distributed in the form of bread. Since fuel was also a problem in Egypt, chaff and charcoal were furnished by different villages and sent to Alexandria.[13] Shipments of grain by the comarchs of Caranis to a horse trainer seem to be in the nature of a tax and presumably these requisitions were made from time to time for the support of the races.[14]

For the support of the poor in other cities of Egypt, we are singularly ill-informed. The eutheniarch was revived by Diocletian early in his reign and was active in a few cities for a time. However the office is not recorded after the early part of the fourth century.[15] The grant of a dole to Alexandria may be due in part to economic disturbances but may reflect a low Nile. If economic conditions affected Alexandria, one may assume that the rest of Egypt was involved as well. Minor indications of difficulties of food supply may be found in the oath of the egg-seller at Oxyrhynchus (A. D. 327),

[10] Anecdota xxvi. 41. It was also stopped under Marcianus A. D. 450-7. Priscus, Frag. 22.

[11] Leontius of Naples, c. 2.

[12] P. Thead. 36 (A. D. 327).

[13] O. Mich. 219; P. Amh. 138; P.O. 1160.

[14] Harv. St. li (1940), 35 (A. D. 315).

[15] P.O. 1252, 1417; P. Leipz. 4. The master of mills (μυλωναρχής) is the head of the guild of millers or bakers (PRG. v. 28; PSI. 884). The baker of Memphis acknowledges receipt from the comarchs of Theadelphia of the part which fell to their share (SB. 5615, A. D. 324).

but the requirement of various guilds to declare stocks on hand in A. D. 338 was probably for a different purpose.[16] In the sixth century the dealers in pork had to provide surety for the provisioning of the public market for the year at Antinoopolis.[17] Two bee-keepers were similarly bonded at Aphrodito.[18] Workmen at Oxyrhynchus were supplied with bread while working in public gardens, but whether Philoxenus was a public or private baker is not apparent.[19]

Granaries of the Fayum (πολιτικὰ ὅρρια) may be municipal but are more probably imperial.[20] We have mentioned elsewhere the possibility of the survival of some of Hadrian's endowments for Antinoopolis into the fourth century. Whether the γῆ δημοσία of this period constituted municipal property it is impossible to say. In the sixth century Aphrodito had its δημόσιος λόγος and presumably it was not the only village so favored.[21]

Constantine is said to have granted the church of Alexandria an allowance of grain for the poor, and Sozomen records the anger of the emperor at Athanasius for the reported sale of this bounty.[22] Later in speaking of Julian who deprived the clergy of the immunities, honors, and privileges bestowed by Constantine, the church historian says that the latter had allowed a certain amount of the taxes everywhere for the support of the clergy and that this law was still observed (ca. 450).[23]

So far there is no evidence from papyri that the church received any aid from the state during the fourth and fifth centuries.[24] The controversies between the Athanasians and the Arians could hardly have allowed much aid to either faction, since the right to distribute corn to the poor would have been a dangerous and powerful instrument for propaganda to that party which possessed the right.

In the sixth century the participation of the church in a share of the taxes is more definite. The monastery of Metanoia had its own boats and sent them up the Nile to receive shipments. Aphrodito sent 5759 artabas for two successive indictions to the monastery and this was called the *embole* for which naulage and the supplements

[16] P.O. 83.

[17] P. Strassb. 46-51 (A. D. 566).

[18] P. Cairo 67296 (A. D. 535).

[19] PSI. 200 (A. D. 592).

[20] SPP. xx. 168; Kl. Form. 398, 580, 962, 973, 1024, 1176; SB. 4502.

[21] See p. 275.

[22] H.E. iii. 9.

[23] Ibid., v. 5; Chronicon Paschale, *sub anno* 360.

[24] The collections in P. Baden 94 (V) may have been voluntary gifts. At least there is nothing to indicate a tax.

of one and five percents were paid.[25] Similarly Ammonius paid to the monastery the amount which he usually paid to the *embole*.[26]

From Oxyrhynchus the first item of expense listed by the pronoetes on Apion's estate was the payment of dues in money and in kind to the village churches. To be sure the payments were small, and the amounts, 3-4 artabas of wheat, and from 6-12 c. in money, were hardly sufficient to maintain a priest, but it is probable that contributions were made by other landlords.[27] Sometimes a special gift was made to a monastery as to that of Abbot Andrew, probably in lieu of taxes.[28] The estate of Theodora at Hermopolis also paid a small annual contribution to the local church.[29]

The testament of the deceased usually provided for a contribution of wine and grain for the προσφορά and ἀγάπη of the deceased or for some of his relatives.[30] There are occasional payments of προσφοραί which may have been in the nature of taxes rather than to discharge some rite for the dead.

Payments in the fourth century ὑπὲρ προσφορᾶς were collected by centurions and seem to have had some military purpose. The collection may have had some connection with the services for a deceased emperor.[31] In the sixth century the payment of 18,512 s. ὑπὲρ προσφορᾶς Ἀλεξανδρείας can hardly be for the support of churches. It seems rather to be the tax in money paid by Apion's estate and sent to Alexandria.[32] A document said to belong to the sixth or seventh century records a payment of 1780 art. of uncleaned wheat, ὑπὲρ προσφορᾶς Ἀλεξανδρείας, which, included with the embole, seems to have been paid with varying additional charges of 7% or 14%.[33] Whether this amount went to the church of Alexandria or to some other destination cannot be clearly determined.

There is little question of the wealth of the church in lands and revenues towards the end of Byzantine rule. The White Monastery was able to maintain 20,000 men together with women and children for a period of three months.[34] In the reign of Heraclius, John the

[25] P. Cairo 67128. On this payment see p. 237. Cf. P. Cairo 67286, 67347; P. Flor. 298; P. Lond. 995-6, 1152.

[26] P. Cairo 67138.

[27] P.O. 2195.

[28] P.O. 1911.

[29] P. Baden 94.

[30] P. Cairo 67003, 67151.

[31] P.O. 1253, cf. O. Strass. 171. The *diva vota* of Antaeopolis (P. Cairo 67057) may be similar.

[32] P.O. 2196 V (A. D. 586?).

[33] P.O. 1906.

[34] Life of Schenute (Mém. Miss. Arch. Fr. iv, folio 53R).

Almoner not only supplied food for 7,500 poor of the city but he maintained a fleet of ships which traded to Britain, Sicily and the Adriatic.[35] Beyond these examples little is known of their charities throughout the countryside.

4. MONEY TAXES ON LAND

In the Roman period the arable land was taxed only in kind, while gardens, orchards, and vineyards regularly paid a tax in money. The evidence for taxes on the latter is limited in the early Byzantine period. In the sixth century it is evident that arable land paid a tax in money as well as in kind and the tax on vineyards at Aphrodito is well attested. In the fourth century sporadic examples of taxes in money imposed on land are found. Some of these are undoubtedly in the nature of special assessments (*μερισμοί*), but there may have been regular taxes as well. In A. D. 301 a woman of Arsinoe, in lodging a complaint of the malpractices of her stewards, spoke of her *κανονικοὶ φόροι* and military requisitions.[1] Whether the *φόροι* here refer to taxes in money may perhaps be questioned, and it is uncertain whether her land was in vineyards or grain, but *φόρος* usually implies money payments. Similarly an estate at Hermopolis paid certain sums which were evidently an adaeratio of requisitions or arrears in wheat, but other payments in money may be taxes on land though only one is called a *φόρος*.[2] The tax register of Thaesis and Harpocration at Theadelphia covers the years A. D. 310-324.[3] If it is complete, the money payments on account of the delegatio (*διατύπωσις*) were two talents in A. D. 312, 313, 315, and in A. D. 314 and 316, 5000 dr. were paid *ὑπὲρ ἀργυρικῶν*. Since these sums were collected by the sitologi they were presumably taxes based on land, but whether they were due to some special emergency or represent a regular practice cannot be determined. The fact that they do not reappear favors the former viewpoint.

In A. D. 316 a tax was imposed to pay the cost of transport of grain from Alexandria to Byzantium.[4] This was at the rate of 50 Attic drachmas per aroura of arable land, 100 dr. per ar. of pasture, and 2 dr. for each olive tree. The accounts of Harpocration for that year show that 3 T. 500 denarii were paid on this account, but no later payments were recorded.[5] Since the practice of sending the

[35] Leontius, John the Almoner.
[1] P.O. 71.
[2] P. Leipz. 64.
[3] Kase, Papyrus Roll in the Princeton Collection.
[4] P.O. 2113.
[5] See Transportation.

Egyptian corn to Byzantium did not begin until much later, this was presumably a special assessment for a special shipment. Constantine ordered that the boats carrying the tribute to Constantinople should receive four percent of the cargo and a solidus per thousand modii.[6] Presumably the Egyptian farmer was assessed for the latter sum, and taxes for sea-going ships were levied in the later period, but the rate is unknown and was probably very small.

In A. D. 349 a tax was levied at Hermopolis for the imperial mines at the rate of 12,250 dr. per ar.[7] This was probably in lieu of providing requisitions of labor, and it is unknown whether the tax was universal or a special assessment.

A series of receipts from Hermopolis in A. D. 385 acknowledged payments in gold for the aurum tironicum which was presumably based on land.[8] Other receipts are for different titles (*διαφόρων τίτλων*). One receipt for ten pounds of gold (720 solidi) is said to be on account of the two-gramme tax (?) based on land (*ἀπὸ λόγου ἀρουρα..δονος διγραμμ.. τῆς ιβ' ἰνδικτίονος*). Whether this indicates that a regular tax was now imposed on land is dubious and it is not attested elsewhere.

An assessment at Oxyrhynchus[9] dated in the late fourth or early fifth century seems to be primarily for military purposes and was based on land as follows:

243 ar.	1 chlamys
175 ar.	1 tunic
1925 ar.	1 pallium

For each chlamys eleven-twelfths of a linen tunic may be substituted.

185 ar.	1 solidus for army mules
83 ar.	1 solidus for recruits
243 ar.	1 solidus for transport of Thalattio
1660 ar.	1 solidus for primipilus
16400 ar.	1 solidus in lieu of labor for nitrate mines
1 ar.	7,500 den. for transport of Clemens
1 ar.	5,000 den. for oxen (?) and donkeys
72 ar.	1 solidus for transport of ——
2900 ar.	1 donkey and half a driver for donkeys to Coptos
[24000] ar.	1 donkey worth 3 solidi for Alexandria

[6] C. Th. xiv. 5. 7 (A. D. 334); P. Cairo Pr. 33.

[7] P. Amh. 140. The difficulty of classifying these taxes as regular or special assessments is obvious. For the *μερισμοί* see also Assessments.

[8] P. Leipz. 62.

[9] P.O. 1905. This is said to be for the 15th year of an indiction and would thus seem to be for the year only. A delegatio for dalmatica imposed on crown land is mentioned in A. D. 319 (P. Oslo 119).

16000 ar. 1 ox worth 2 solidi for Alexandria
1 ar. $7\frac{2}{3}$ lbs. of flax (?)
1 ar. 10,000 den. for dispatch boat (?) of prefect
1 ar. 10,000 den. for labor in alum mines and ——?
113 ar. of village property 1 solidus for ——?
116 ar. 1 (?) artaba of barley
The remainder is lost.

The tax for military clothing, for recruits, mules, primipilus,[10] and labor for the mines may be regularly imposed in this period, but the supply of oxen and donkeys to Coptos and Alexandria, the transport of Thalattio and Clemens seem to be special requisitions which were probably non-recurring. The value of the military garments is unknown.[11] At this time the denarius was very greatly depreciated and probably the total tax, if converted into gold, was not more than half a carat per aroura.[12]

In the fifth century little information about taxes on land can be gleaned from the sources. A register of unknown origin records a tax on land under hay at 15 c. per aroura but when the tax was levied in grain, the rates varied from 2 to 7 artabas of wheat per aroura.[13] A sale of $1\frac{1}{4}$ ar. of land carried the provision that the purchaser should pay τὸ ὑπερτελὲς καὶ---υσον, namely 3000 T. in addition to the tax in kind.[14] Furthermore, an annual extra payment of 650 T. including other taxes in kind was required. The text of the document is not in good shape, and the interpretation is not beyond question. The use of ὑπερτελές and ὑπερτελέσαι is rare in documents of sale. Possibly the annual money tax was 500 T. per ar. and the 3000 T. represents an accumulation of arrears. A land register from the Fayum ascribed to this period gives certain areas and taxes in gold which bear no relation to the area and may be a record of arrears.[15]

In the sixth century a number of documents deal with taxation but rarely is the rate given. A document from Aphrodito dated ca. 570 states that the rate imposed by the Censor John was 2 c. per ar. on arable land and 8 c. on vineyard. On the latter $2\frac{1}{3}$ c. apparently was allowed for collection. The date of John is uncertain but he may have been appointed when Aphrodito received the privilege

[10] See Military Assessments.
[11] Valens decreed that a garment should be assessed on every 30 iuga (C. Th. vii. 6. 3. A. D. 377). The price of the chlamys to Thracian soldiers was advanced from 18 c. to one solidus in A. D. 396 (C. Th. vii. 6. 4).
[12] Currency in Egypt 157 ff.
[13] P. Princeton 136.
[14] PSI. 66.
[15] SPP. x. 144; $12\frac{3}{4}$ ar. 1 s.; 4 ar. 2 s.; 60 ar. 37 c.; 19 ar. 65 (?) s.

of autopragia or he may be an appointment of Justinian when he sought to reform the system in Egypt. Julian, pagarch of Antaeopolis, had raised these rates to 4 c. on arable land and 23 c. (public standard) per ar. of vineyard, and the present complaint was due to the fact that a further tax of $2\frac{1}{2}$ c. was being imposed, apparently, on the arable land and that too in spite of a failure of the flood.[16]

The accounts of Aphrodito are preserved in part for five years and the canonica and annonae are maintained at a relatively uniform rate except for one year when unusual expenses for the annona probably represent some unusual military expense.[17]

The tax of Count Ammonius, said to be assessed according to the schedule of John, does not seem to fit the pattern. On one lot of $13\frac{1}{4}$ ar. of arable land and 5 ar. of orchard (*δένδρα*) the tax was 67 c., which is approximately accurate. However, on a larger property of $58\frac{5}{8}$ ar. of arable land (of which 13 ar. are described as ownerless and were probably assigned for compulsory cultivation), 1 ar. each of reed and vineyard, and $6\frac{3}{4}$ ar. of garden land the tax in gold seems to be 13 s. 5 c. when it should be 7 s. $20\frac{1}{4}$ c. (unless gardens were taxed very much higher than vineyard).[18]

The accounts of Dioscurus cover a series of years but there is no indication of area, and taxes paid by tenants or various members of his family, usually in instalments and in different standards, make it impossible to determine whether his tax in gold was uniform.[19] A sale of 4 ar. of land was made to the monastery at Zmin on condition that the monastery pay the taxes on another lot of 14 ar. of arable land which amounted to 4 s. and 18 art. of wheat. The gold tax in this case approximated 7 c. per ar. but probably there was an accumulation of arrears.[20]

In A. D. 569 a sale of one ar. of land at Hermopolis specified that the tax was $1\frac{1}{2}$ c. and half an artaba of wheat. This included all annonae and other money taxes (*χρυσικοὶ τίτλοι*).[21]

The register of Antaeopolis not only gives the area of arable land under cultivation in grain, reeds, vines and orchards but gives a long list of taxes of various kinds. We have discussed this document more fully elsewhere but may repeat here that it is possible to assume that the largitionalia at this time, perhaps at the beginning of Justinian's

[16] P. Lond. 1674 (ca. A. D. 570).

[17] See Taxation of Villages in the Sixth Century.

[18] P. Cairo 67140[2].

[19] P. Cairo 67045-7, 67322; P. Flor. 298. For example Sophia paid 12 c. for the 3rd year; 24 c. for the 4th (of which $17\frac{3}{4}$ c. was a joint payment by Enoch and Sophia); $6\frac{1}{4}$ c. for the 5th; 12 c. for the 6th; $12\frac{1}{4}$ c. for the seventh and eighth years.

[20] P. Lond. 1689.

[21] P. Cairo 67169.

reign, were a tax of $1\frac{1}{2}$ c. per ar. on the whole area, while the total tax in gold in normal times probably did not exceed $2\frac{1}{2}$ c. per ar.[22] There is no evidence in this register for poll tax or taxes other than on land.

The tax on the private estates of Apion and others is complicated by the problem whether the accounts of the pronoetae include only taxes or all the income of the property.[23] When the estate acted as an agent for imperial property, the amount collected on arable land was a solidus per aroura and three solidi per aroura on vineyard. Nothing was here collected in kind and it is not certain that these payments would represent the tax on private property in the same district.[24]

The collections and rebates to tenants do not necessarily represent the rate of taxation. An account of A. D. 557 gives numerous rebates of varying amounts but the most common is at the rate of 18 c. per ar.[25] Five arouras described as *ἄφορος γῆ* (line 117) received a rebate of $77\frac{1}{4}$ c. Vineyard converted to hay land (line 91) was allowed 16 c. and land covered with sand $21\frac{3}{4}$ c. per ar. Another account, probably dated A. D. 576, also provided rebates in money as well as in kind. On three arouras of unflooded land (?) the rebate per aroura was 4 art. 14 choenices and $6\frac{1}{4}$ c. (line 95). It is probably safe to assume that the rebates were always less than the annual tax.[26]

From the Fayum the evidence is limited. A receipt dated shortly before the Arab conquest indicates that the tax on 13 ar. was 38 c.; on $1\frac{1}{2}$ ar. $4\frac{5}{8}$ c.; and on $3\frac{1}{2}$ ar. $11\frac{1}{2}$ c. or approximately 3 c. per ar.[27] Another document dated in the seventh century gives the tax on 2 ar. as one solidus and 3 art. of wheat.[28] A fragmentary receipt dated in the sixth century acknowledges the payment of $117\frac{1}{8}$ c. as the tax on 6 ar. 19/24 *ἄμματα* or about 18 c. per ar.[29]

The variations in rates seem to indicate that no uniform system of taxation on land was imposed. Unfortunately most documents lack precise dates, but the tax at Hermopolis indicates a lower rate than at Antaeopolis or Aphrodito. It is quite possible that the Byzantine rulers kept as a principle the idea of imposing different rates of taxation in different parts of the Nile valley in order to prevent the union of discontented elements in possible revolt.

Freedom from taxation was rarely granted. A bequest of land to a monastery at Aphrodito described the property as *ἀτελής* and *ἀνυπο-*

[22] See Taxation of Sixth Century; Pagarchy and Village.
[23] See Private Estates.
[24] P.O. 1915.
[25] P.O. 1911.
[26] P.O. 2195.
[27] P. Lond. 113. 8 c.
[28] SPP. xx. 160.
[29] Kl. Form. 38.

τελής.[30] Whether the use of both of these terms is an example of the redundant verbiage of this period it is difficult to say. It may mean that all taxes had been paid up and there were no arrears. There is no evidence that church property was immune. The *dorea* of Theodora enjoyed certain privileges but the exemption was only partial. It is possible that certain δίκαια on the estate of Apion enjoyed privileges of exemption, but the evidence for exemption is slight.[31]

The taxes on land were usually designated as τὰ δημόσια and at Antaeopolis these seem to belong to the largitionalia. At Oxyrhynchus, where Stephanous transferred her dowry from her father's name and entered the property in a division which had the right of autopragia, she declared her tax as 63 artabas of wheat together with the transport dues (μεταφορά), freight (ναῦλον) and all expenses.[32] In addition she agreed to pay 22 c. public standard (i. e., one solidus private standard) to the canonica and 22½ c. ὀβρυζιακά (i. e., one solidus private standard) to the arcaria. There is no other evidence that the gold tax on land was equally divided between two departments.

5. CAPITATION TAXES

Diocletian abolished the capitation tax on the urban proletariat in the Eastern diocese. This law was confirmed by Constantine, and since Justinian incorporated it in his Code, it is evident that the tax was not imposed in A. D. 535.[1]

The edict of the prefect of Egypt issued in A. D. 297 called for a census " of each head of the agrarian population and the maximum and minimum ages of liability in accordance with the published divine edict and the breviary included in it." The edict and breviary are lost, but there is no question that Diocletian proposed an equitable tax on the agrarian population.[2]

While the intentions of Diocletian are known, there is considerable doubt whether his intentions were ever carried out in Egypt. Two

[30] P. Cairo 67151.

[31] See Private Estates. P. Baden 95; P.O. 2195.

[32] P.O. 126. At the ordinary price of wheat at this period (10 artabas per solidus), the ratio of taxes in gold to those in kind is approximately 3: 1. In the Estate accounts no ratio is ascertainable. See also P.O. 1887 for a similar transfer. The tax in P.O. 1944 was 300 artabas of wheat and 40 s. per year.

[1] C. Th. xiii. 10, 2; C. J. xi. 49, 1. This capitatio is not necessarily to be regarded as a poll-tax. It may be a tax based on property. The capitation taxes are treated by Piganiol in Rev. Hist. 176 (1935), 1 ff. and Segrè, Traditio iii (1945), 101. Seston, Dioclétien 261 ff.

[2] See Taxes in Kind.

factors may have militated against it. The survey of the land was more important and seems to have been taken in hand at once.[3] There is no evidence that a census of the rural population was undertaken before A. D. 309/10 when declarations were made at Caranis and Theadelphia.[4] These were made by Aurelii and indicate that males from the ages of 12-45 were subject to tax (ὑποτελής). A child aged three was not. There is no other evidence for the upper or lower age limits, and no other census declarations have appeared from Byzantine Egypt. Whether civil war stopped the census is unknown. In the sixth century the censitor is rare. At Aphrodito the position was held by John the scholasticus, and his duties may have been limited to a land survey.[5]

Even if the census was completed, the depreciation of the currency may have rendered the tax worthless. This could be remedied to some extent by constant change of the rate, but the rapid depreciation of the currency seems to have outstripped all efforts of the government to control it and the tax-payers could profit by delay or evasion. It is quite possible that a rate proclaimed at the beginning of the year might not be worth the trouble of collecting by the end. If the tax was evaded, as the Egyptian peasant was likely to do, the amount might easily be worthless in a year or so.[6]

The papyri give no evidence for a poll-tax on villages unless the assessments (μερισμοί) are so construed, but these vary so greatly in amount that it is unlikely that they are a capitation tax. However, in the early part of the fourth century (A. D. 301-315) there are four receipts for a tax called the ἐπικεφάλαιον πόλεως at Oxyrhynchus. The payments vary from 1200 dr. to 25 myriads. In one case the payment was made in accordance with the orders of the prefect, in another the catholicus issued instructions, while the source of the authority is not stated in the other two receipts.[7]

These receipts cannot be used to prove the existence of a poll-tax. In the first place this tax was not levied on the urban population. Secondly, if the payments were for a poll-tax, there would be no necessity for special orders to be issued for its collection, and obviously the prefect and the catholicus could not have jurisdiction over the same tax. Finally the great variation in the amounts from 1200 dr. to 25 myriads in a period (301-309) when inflation was

[3] See Land Declarations.

[4] SB 7073; Strassb. 42.

[5] P. Cairo 67140[2], 67118, 67329.

[6] The increase in prices during the first quarter of the fourth century does not seem to be inflationary. See Prices of Wheat.

[7] PSI. 163 (301); 780 (305); 302 (308); 462 (315).

still reasonably controlled, as the index of prices of wheat would indicate, is impossible as a poll-tax.

We suggest that the *ἐπικεφάλαιον πόλεως* represented in the receipts cited above is an assessment imposed upon Oxyrhynchus by the imperial official, such as the *εἴσπραξις ἀργυρικῶν* imposed on Oxyrhynchus in A. D. 290 and apportioned among the citizens in accordance with their capacity to pay, that is in accordance with their property.[8] These assessments were also exacted from various guilds. Thus the payment *ὑπὲρ συντελείας κεφαλῆς* is the assessment per member but not a poll-tax.[9]

After A. D. 315 there is no further mention of the *ἐπικεφάλαιον*. The various assessments imposed on villagers cannot be regarded as a poll-tax, since the great variations of the various registers indicate such wide divergence in the payments that it is evident that the basis of the assessment was the property owned by the individual.[10]

The constitution of Constantine issued in A. D. 322 was addressed to the provincials and would seem to be universal in placing the responsibility for the tax on coloni on the proprietors. However the constitution makes no mention of a poll-tax, and the tax on the land was clearly more important. At this period the Egyptian land reform had not been carried out, and since the great proportion of the land belonged to the crown, the constitution could have had no significance for the Egyptian peasants of whom the vast majority were still tenants of the crown.[11]

After the land reform the Egyptian tenant of former crown land became the possessor of his leasehold. The growth of patronage was fought in a series of constitutions. While the patron was responsible for the tax of the colonus there is no definition of the tax.[12]

The Romans called certain liturgies personal and while these were imposed per capita they can hardly be classified as capitation taxes. Thus work on canals (*ναύβια τῆς κεφαλῆς*) and other liturgies requiring personal service (*ἐπικεφαλείων ἢ καὶ ἑτέρων σωματικῶν λειτουργιῶν*) belong to a different category of taxation.[13]

The evidence for taxation in the fifth century is very slight but

[8] PSI. 461; P.O. 2106. The payments in O. Mich. 104-114 may belong to this category.

[9] P.O. 1331. This seems to be an assessment in which one member pays the part that falls to him. Cf. ibid. 1330 where the tax is paid to the headmen of the guild.

[10] See Assessments.

[11] C. Th. v. 17, 1 (A. D. 332). See Land Reform.

[12] C. Th. xi. 24, 1-6.

[13] See Liturgies. P. Reinach 57 (*ναύβια*), P. Lond. 1783, 1827; PSI. 685. In P.O. 1330-1 the tax *τὰ αἰροῦντά σοι* is probably a guild assessment.

the poll-tax is not recorded for that period.[14] After the close of the fifth century evidence is more abundant, particularly from the estates at Oxyrhynchus. The great register of Antaeopolis contains no entry that can possibly be construed as a per capita tax. The accounts of Aphrodito do not indicate how the gold was collected, but other registers which come either from that village or nearby indicate that assessments were distributed among the property holders and evidently in accordance with the value of the estates. The accounts of Ammonius cover four years. In only one of these is a payment made by some of his tenants of such a kind that it might be construed as a capitation tax, but if so it was paid only by a few and there is no evidence of it in the other three years. It may be an assessment of some kind. Similarly the accounts of the estate at Hermopolis give a full register of taxes for four years, but no one paid a poll-tax. The accounts of Apion thrice mention a *συντέλεια κεφαλῆς* which is not paid by the individual tenant but by the *κοινόν* of farmers, and is apparently a contribution to make up the deficit of some member who has not paid his tax. But the rarity of levy, the varying amounts (usually a fraction of a carat), and the fact that it was paid only by the guild all seem to point to the conclusion that the levy was based on land and was not a capitation tax.[15]

The main principles of Arab taxation in the eighth century are known chiefly from documents discovered at Aphrodito, and are set forth by Bell in his introduction to the fourth volume of the British Museum papyri. The tax *ἀνδρισμός* is unquestionably a poll-tax and Bell would place the *μερισμὸς διαγραφῆς* found at Arsinoe and other cities in the same category to serve as proof that the poll-tax existed in Byzantine times. However the *διαγραφή* is limited to cities, and at Arsinoe is usually an assessment on a particular street (*λαύρα*) of the city or on members of guilds. Although the tax on trades was said to be abolished by Anastasius there is ample evidence that the various guilds paid taxes in Egyptian towns through the sixth and seventh centuries into the Arab period. The *διαγραφή* is probably a tax on trades located in certain quarters of the city but whether it was an assessment per capita is unknown. The *διαγραφαί* described by Procopius as imposed by Justinian were primarily taxes on land and were no innovation of that emperor. The guilds of Aphrodito

[14] P.O. 1330 is dated from the writing in the fifth century but this appears to be a tax on trades.

[15] P.O. 1911, 1912, 2195.

and Panopolis paid taxes and in the case of the latter city the guilds were as heavily taxed as the landed proprietors.[16]

The phrase κεφ( ) Ἰουδ( ) is once recorded in a receipt from Hermopolis in the fifth or sixth century.[17] The restoration may be κεφ(αλαιωτῆς) and cannot be taken to prove the existence of a head tax on Jews. A constitution of Theodosius released the guilds of Alexandria from the liturgy of cleaning the city aqueducts, and the emperor transferred 400 solidi of the revenue from the dinummi tax to this purpose.[18] While this tax is not recorded elsewhere it is suggestively reminiscent of the tax of two denarii imposed on Jews in the first century and presumably abolished by Hadrian. Whether such a tax was revived again is unknown. The letter which ʿAmr is reputed to have written the Calif on the capture of Alexandria mentions 40,000 tributary Jews. This is the only evidence for a tax on Jews in the Byzantine period and is far from conclusive.

Heraclius is said to have exacted a head-tax called pactum (bakt) in order to maintain the armies of ʿAmr but this tale is probably mythical.[19]

Whether the Arab conquerors of Egypt maintained the Byzantine system of taxation in its entirety or whether they introduced taxes as imposed in other provinces is uncertain. Probably they did both. But whatever they did, the accounts of early Arab historians concerning the revenues cannot be trusted. Abû Salîk gives the revenue of the Romans from Egypt as 20 million dinars (solidi). In the year 20 of the Hegira (A. D. 640-1) the revenue had dropped to one million dinars but two years later it rose to twelve million. At the time of the conquest the population was six million without counting decrepit old men, and children below the age of understanding. On these ʿAmr imposed a tax of two dinars while the rich paid in addition three ardebs of wheat. In this way the country produced its revenue of 12 million dinars. The successor of ʿAmr raised four million but no explanation of the drop is given. The credibility of this author may be seen in his statement that the survey of Egypt in A. D. 724-744 showed the area as thirty million feddans (acres).

The account of Al-Makrizi (Khuṭat) is virtually the same, though he preserved another tradition that the tribute was placed at two dinars per head on people of silver and four on people of gold

[16] See Kl. Form. index *s. v.* διαγραφή. For Panopolis see P. Hamb. 57. See further under Miscellaneous Taxes. Procopius, Anecdota xxiii. 17ff.

[17] Kl. Form. 1299.

[18] C. J. xi. 29. 1 (A. D. 436).

[19] Patrol. Or. i. 493. See Butler, Arab Conquest, 207ff.

(presumably distinguishing between the humiliores and honestiores). Half the revenue was sent to the Calif and half used for local expenses, building bridges (dykes?), enclosures (embankments), and digging canals. For this work 120,000 laborers were used winter and summer. Each tax-payer paid an ardeb of wheat per month and was requisitioned for silk and clothing according to the specifications laid down by the Calif. It was also required that the Egyptian should provide two measures of wheat and three of oil to each Muslim but who were entitled to this is not stated. He was also required to furnish hospitality for three nights to any Muslim. The census of Upper Egypt showed 10,000 villages, the smallest of which had 500 males subject to taxation.

The Fûtûh Miṣr of Abd al-Hakam gives the population of Alexandria as 600,000 other than women and children. This was after the flight of 30,000 Romans and 70,000 Jews. Those who remained were subject to a head tax which fluctuated according to the wealth and prosperity of the people. This seems to refer to the old custom of determining the land tax according to the rise of the Nile. This author also quotes the reputed letter of 'Amr written to the Calif in capturing Alexandria. "I have taken a city of which I can but say that it contains 4,000 palaces, 4,000 baths, 400 theatres, 12,000 green grocers, and 40,000 tributary Jews." These figures might not be unreasonable if, as Butler suggests, they were divided by ten.[20]

The existence of a capitation tax in Byzantine Egypt must still be regarded as unproven. There is no question that certain assessments are described in the documents as per capita taxes, but even in these cases there is evidence that the unit of taxation was not the caput of the individual but the amount or value of property which he held.[21] In this way only could the equitable system of taxation for which the Emperor was striving be attained.

It is quite possible that the Byzantine jugatio in Egypt is the tax in kind levied on land, for which the unit was the aroura. The Byzantine capitatio may be the tax in money levied on land, but in this case the unit or *caput* seems to be property in general including land, live stock, slaves, and other possessions.

[20] Arab Conquest, 207 and note.
[21] See Assessments.

6. ASSESSMENTS

When Diocletian called for a report on the number of κεφαλαί in Egypt, it would seem a reasonable assumption that he proposed to establish a capitation tax on the rural population, since the urban dwellers were exempt throughout the Orient, but the evidence, so far as known from published documents, cannot be used to prove the existence of a regular poll tax in Byzantine Egypt. Proof that the jugatio or the capitatio in the western form ever existed in Egypt must still be sought. However, assessments were made from time to time which were described as per capita (κατ' ἄνδρα) and which were levied on the urban as well as on the rural population. The varying rates seem to indicate that in general some account was taken of the property or income of the individual.

In A. D. 312 an assessment at Caranis is recorded which ends with the curious plaint, "The comarchs make the assessments as they please without regard to income (σαλάρια) or the quadrarii (?), for they act in collusion with the praepositus (pagi), nor do they regard the lot (κλῆρος) of the village secretary nor justice but do as they please." In all five assessments were made of which four called chiefly for money (227⅓ T.) and a small amount of cereals (3 art. of peas, and 2 art. each of beans and vetch) while one was for wheat (7 art.). The use of σαλάρια in this connection is unusual. Mr. Boak translates it as income.[1] If this is correct, the assessments were supposed to take cognizance of the property qualifications of the individual and this was not a per capita assessment. These five assessments in a single year must have placed a heavy burden on the tax-payer.

The first evidence for the assessments per capita comes from Hermopolis in A. D. 340. In one village the assessments were made by the ephor, comarchs, and quadrarius who reported to the praepositus pagi collections of 25 T. from 125½ men in Pachon, and from 100 men in Payni, Epiph, and Mesore.[2] Whether the half man is to be regarded as half a caput or whether some one paid half his assessment may be questioned. Equally problematical is a report from another village of Hermopolis in the same year of a per capita assessment.[3] The names which follow have entered opposite them

[1] Boak, Harvard Studies li (1941), 46. For the use of σαλάρια cf. P. Hamb. 56. The traces of the letters as given by Boak seem to indicate the possibility of the restoration, κουδράριος, an official who was concerned with assessments at Hermopolis (SB. 7685; P. Goodspeed 12).

[2] BGU. 21.

[3] P. Goodspeed 12 (Chr. 253).

units such as $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, and $1\frac{1}{2}$. Wilcken suggested that these units, since there was no designation of artabas or nomismata, were taxation units or capita. This suggestion finds some support in a document from Oxyrhynchus some twenty years later.[4] This gives a list of various taxes as follows:

Canal of Alexandria	For one caput	73 myriads of	denarii
γρὶ καὶ σιρώματος . . .	" " "	3 " "	"
πρωτίου (first instalment?)	" " "	45 " "	"
(δευτερίου second instalment?)	Amount not given.		
Anabolicum	For one caput	68 myriads of	denarii
Transport of hemp	" " "	25 " "	"
τριμιταρίων	" " "	75 " "	"
Sailors in Indian trade .	" " "	56 " "	"

The following line is indecipherable, but the next entry gives $383\frac{1}{2}$ myriads of denarii as the total, however this total is arrived at, and in the next line, although some of the readings are indicated as uncertain, the tax of 450 myriads is indicated as the assessment on one and one-sixth heads. The praepositus pagi issued to Philadelphe a receipt for the crops of the second year (ὑπὲρ γενημάτων β′ ἔτους) for the assessment for the canal, γρί, σίρωμα, πρώτιον, δευτέριον, ἀναβολικόν, for Indian sailors, and for the τριμιταρίων paid for one resident of an ἐποίκιον. The receipt, issued on behalf of the crops of the second year, seems to indicate that, if this was a capitation tax, it must have been levied on the basis of income and not on a mere count of heads.

In the same year an official (?) of Philadelphia sought the arrest of one of his neighbors who had joined with others in the previous year in burning his house and who had assaulted him in the current year.[5] In addition to these personal injuries the writer claimed that "his enemy hinders the assessments of the village in public affairs" (κωλύει τοὺς γενομένους μερισμοὺς ἐν τῇ κώμῃ τῶν δημοσίων πραγμάτων). This charge is rather indefinite but presumably the defendant by his acts of pillage prevented the plaintiff from discharging certain assessments imposed upon the village.

This is the evidence for the imposition of the capitatio in Egypt. Although the mathematical difficulties in the Oxyrhynchus document are obvious, it furnishes the strongest support yet published for the capitatio. Yet the receipt issued seems to indicate that the

[4] SB. 7756 (A.D. 359). The brevium giving the basis for the tax is rarely recorded in tax receipts. Evidently this assessment was unusual.

[5] BGU. 909. For the μερισμός for mines see Money Taxes on Land.

basis of the capitatio was not a head tax but was actually based on income or on land. It is equally clear that the regulation which made two women equal to one man for the purposes of taxation did not prevail in Egypt.

Other assessments of the fourth century, whether in gold or in depreciated currency, indicate that they were based on land. Thus the register of land at Hermopolis records an assessment of Antinoopolitans holding leases in Hermopolis.[6] The sums collected vary from 220 T. to 3734 T. The sums bear, it is true, no particular relation to the property registered under the individual names, but still less can they be reconciled with a rating of capita. Another assessment dated in the fourth century records the amounts in gold.[7] Again the variations are so great (12 s. to small fractions of a carat) that the assessments must be based on property. See also money taxes on land.

In the fifth century surety was provided for a certain Aurelius David, resident of Acis, a village of Hermopolis, that he would remain in the village and answer for each assessment of public taxes (*τῶν δημοσίων*) on his head.[8] In the sixth century *τὰ δημόσια* were usually taxes on land, and if David was, as Mr. Bell suggests, a registered farmer on an estate, his master would normally be liable for his taxes. It may be doubted whether this proves the existence of the poll-tax in Egypt at this time.

The assessments (*μερισμοί*) of the sixth century seem in general to be the result of a delegatio (*διατύπωσις, διαγραφή, χειρογραφία,* or *ἐντάγιον*) issued by the civil or military officials. The amount was designated in a *formaria* sent to the pagarchy, or village if it enjoyed the right of autopragia, and the assessment was made by local officials or possibly by the hypodectes. The assessments in kind supplied the army and the tribute for Constantinople.[9] Assessments in money were made at Aphrodito for various purposes (military, officials, etc.), and presumably the payments in small amounts of *σαλάρια* and *δόσεις* found in rare instances were local variants of the *μερισμοί*.[10]

The *μερισμὸς διαγραφῆς* found at Arsinoe seems to be imposed by districts.[11] According to Procopius Justinian imposed the *διαγραφή*

[6] P. Flor. 71. See also Capitation Taxes.

[7] P. Leipz. 98. See also BGU. 1628, 1630, P. Cairo Pr. 30, PRG. v. 59.

[8] P. Lond. 1793 (A.D. 472). Bell suggests that this document definitely proves the existence of the *capitatio* in Egypt.

[9] See Annona and Taxation in the Sixth Century.

[10] P. Hamb. 56; P. Lond. 1673.

[11] Kl. Form. 651 ff.

on land.[12] In the Arab period the διαγραφή seems to have taken partly the form of a poll-tax and partly of an income tax as it is said to have varied according to the wealth of the individual.[13] In the late Byzantine period the διαγραφή may be similar to the Arab tax, but it can hardly be called a poll-tax unless this was revived after Justinian.[14] The assessments on streets and quarters of Arsinoe seem to be more in the nature of a tax on trades. Although this was said to be abolished by Anastasius the various guilds seem to have contributed to the taxes of Aphrodito, and at Panopolis their contributions were more important than those of the landed proprietors.[15]

The method of making the assessments seems to indicate the work of the tax collector who was interested in his commission. It seems clear that he was entitled to collect in most taxes a fee, usually two carats per solidus.[16] For the purpose of the fee, any amount over 16 carats was regarded as a solidus. For this reason the tax-collector divided up the taxes as far as possible so that he could collect a fraction over 16 carats from as many contributors as possible. Thus in a register presumably from Aphrodito[17] a certain Charisius paid under five different headings as follows: 1 s. less $4\frac{3}{4}$ c. (l. 69), 1 s. less 5 c. (l. 125), 1 s. less $7\frac{1}{4}$ c. (194), 1 s. less $6\frac{3}{4}$ c. (232), and 1 s. less $5\frac{1}{4}$ c. (362). The total was 5 s. less 29 c. public standard or 5 s. less 19 c. private standard (4 s. 5 c.). If this had been exacted in a lump sum the commission would be 8 carats, but by distributing the assessments in small amounts under different headings, he was able to collect 10 c., thus increasing his income by 25%.

The ἐπιμερισμός is limited to the early part of the fourth century and the term is found only in land leases.[18] The ἐπικλασμός is limited to one example after the introduction of the indiction cycle and is probably a local variant of the ordinary assessment.[19] In the sixth century an example of ἐπινέμησις is found at Oxyrhynchus which

[12] Anecdota 23. 18ff. Justinian (Nov. 128, A.D. 545) forbade the governor or his staff to exact angary or διαγραφαί

[13] Bell, Introduction to P. London, Vol. iv.

[14] Justinian retained the law of Constantine granting exemption from the *capitatio* on the urban population (C. J. xi. 49. 1).

[15] P. Flor. 297; P. Hamb. 56; C. J. xi. 1. 1. The importance of the guilds in taxation may be seen by the fact that the headmen (κεφαλαιῶται) joined in the petition against the exactions of Julian (P. Cairo 67283).

[16] Currency in Roman Egypt, 140ff.

[17] P. Flor. 297. See also P. Lond. 1673 where the δόσεις seem to be determined on a similar plan.

[18] P. Leipz. 6, 19; P. Flor. 17; SPP. ii, p. 33; P. Cairo Pr. 39 (all from Hermopolis); P.O. 1704; CPR. 44 (Fayum).

[19] P.O. 1704.

seems to be an extra assessment imposed upon an estate.[20] The amount of the assessment seems to be 5 s. $3\frac{3}{4}$ c. and each tenant was liable for a payment of $12\frac{1}{2}$ c. quite irrespective of his ordinary tax in money or in kind. The nature of the tax on date palms and dovecotes is less clear.

7. TAXATION IN THE SIXTH CENTURY: ESTATES

A few estates kept fairly complete records and some of their records have been preserved. While they add comparatively little to our information about taxes, they give some idea of the size of the estate.[1]

Olybrius, probably a descendant of an old consular family, had three farms (*οὐσίαι*) and a property (*κτῆμα*) in the upper Nile valley.[2] Seemingly Olybrius had defaulted in his payments and when the matter came before the courts he lost his case and was assessed to pay as follows:

	Army	Dux	Princeps	Bureaus
Wheat . . .	12,030 mod.	9,200	45,809 (?)	$3{,}700\frac{1}{2}$
Barley .	62,688 mod.	9,840		
Wine-Meat . .	252,994 units	41,850		22,398
Chaff . .	87,500 units	27,200	$2{,}087\frac{1}{2}$	
Money	200 s. (plus)			

These payments seem to be made to the department of the arcaria. The document is not preserved in full and apparently 2100 units of wine-meat were paid to some other department or individual. If the amounts are correctly read, Olybrius paid 23,579 artabas of wheat, 26,000 artabas of barley (allowing 3 modii per artaba), more than 320,000 units of wine or meat (the unit is probably the litre) and 117,000 units of chaff. How much of this is penalty, or arrears, it is impossible to say, but the estate must have been fairly extensive.

From Aphrodito accounts of Count Ammonius and of Dioscurus are preserved, but the accounting methods of neither can be commended for clarity.[3] Payments in gold by various tenants of Dioscurus were said to be *ὑπὲρ δημοσίων* or *ἀπὸ δημοσίων*. Some were paid apparently in public standard (*ζύγῳ*) implying that a fee for collection was deducted, others were paid without any deduction (*μονάς*).

[20] P.O. 2037.

[1] See the chapter on Private Estates.

[2] P. Flor. 377.

[3] For Dioscurus and his family see P. Flor. 298, and P. Cairo 67325.

The smallness of the sums (30 c. for 6th indiction; 30¾ c. for 8th; 49⅓ c. for 7th; 54¼ c. for 6th, while the payment in grain for the 6th indiction appears to be either 100¼ or 176 modii), does not indicate an estate of any size.

Another account of Dioscurus has payments by the same tenants (Sophia, Victor, Peter (or Pterus). Here the distribution of seed and receipts of grain for the 8th year of the indiction might indicate a larger holding. The receipts seem to include 360 art. of wheat, 49 of barley, 16 of lachanus, cnecus, 30 camel loads of dried hay, and 403 jars of wine. The taxes in wheat are recorded for the fourth and sixth years of the indiction but there is no indication whether they are partial or complete. In the fourth year 55 modii were paid; in the sixth 119¼ artabas with naulage and supplements. This was paid in the name of Cornelius Philantinoos. The payments in money are equally confusing:

3rd year of indiction 48½ c.
6th " " " 6 c. for naulage
4th " " " 42½ c.
5th " " " 5 c.
3rd " " " 36¾ c.
5th " " " 12½ c.
6th " " " 6¼ c. for naulage ἀπὸ δημοσίων
Athanasias' place (5 payments) 65 c. λόγος τοῦ χρυσίου
5th year of indiction 12¾ c. ἐμβολὴ εἰς τοῦλιτρ( )
6th " " " 6½ c. ἀπὸ δημοσίου
5th " " " 5¾ c. ὑπὲρ δημοσίου
8th " " " 4½ c. διαγραφή, 6 c. ὑπὲρ δημοσίου and ⅞ c. for ἐμβολή.
4th year of indiction 12½ c. and 6 c.

From these accounts one despairs of getting any clear picture of the tax paid by Dioscurus, but if the documents are any index, the estate was not large. Nothing is said or implied of his flocks which were presumably large.[4]

Count Ammonius held land of his own and leased from various monasteries, subletting to others. A census held by John, scholasticus and censitor, gave him 59½ ar. of arable land, 4½ ar. of garden, and 1 ar. each of vineyard and reed marsh.[5] The long accounts which are preserved indicate that above two-fifths of his holdings

[4] P. Cairo 67139.

[5] The accounts are preserved on several folios (P. Cairo 67138-9). The census of John is found in P. Cairo 67140[2].

were leased from a monastery and sublet to others. Some tenants paid their rent directly to the monastery, others to the granary of the landlord, while two paid only to the tax-collector. This may have been an arrangement to avoid unnecessary charges for transportation. The summary of the two documents of which one seems to be for the 8th and 9th years of an indiction and the other for the 7th and 9th years, is as follows:

Indiction year	8	9	7	9
Receipts of wheat (artabas)	1001 [6]	1005½	1006	1006
Rent to monastery	403	399½	413 [7]	400½
Tax	198⅔	185	166 [8]	161
Granary of Ammonius	342 [9]	272 [10]	260 [9]	(444½) [11]

The only indication of area is that 141 artabas of seed were loaned to the monastery of Peto implying an area of 141 ar. in lease from that institution. The tax paid by the monastic property was regularly 32 artabas (96 modii) implying a rate slightly over a quarter of an artaba per aroura. But the monastery may have enjoyed a privileged position in respect to taxation. An adaeratio of barley, 64½ c., paid to the hypodectes is evidently a military requisition. The payment for the support of the Bis electi and a small contribution (1 s. less 4 c.) for thongs and cilicia (*νεῦρα καὶ κιλίκια*) paid to the diadotes of Antaeopolis may perhaps reflect expenses to meet the war with the Blemmyes.

The taxes in money paid by Ammonius are difficult to determine. According to the census of John, he seems to have been assessed 13 s. 5 c. on his private holdings. According to these registers the tax for the eighth year of an indiction was 10 s. 23 c. for the city (*ἀστικά*) and 4 s. 19⅝12 c. for the village (*κωμητικά*), and 67⅔ c. for the monastery of Peto or a total of 18 s. 13 19⅝24 c. The taxes for the

[6] This includes a supplement of 57 artabas (Fol. 2, verso).

[7] This does not include a donation of 100 artabas made to the monastery of Psinabla.

[8] This amount given in Folio 4 does not correspond with the detailed account of Folio 2 Verso which gives a total of 289⅓ artabas, and this again differs from the detailed analysis (67⅔ art. for the village account, 94 artabas for the city account, and 22⅔ artabas for the monastery of Peto, or a total of 183 13⅝24 artabas).

[9] This is the balance after deducting certain expenses.

[10] To this should be added 149 artabas from Peto given to Menas for seed. This was repaid in the 9th indiction of P. Cairo 67139. This is further proof of the hopeless nature of the accounting system. Repayment of seed would naturally be made in the same year. It is possible but not probable that the same amount was the subject of a transaction fifteen years later.

[11] This balance is obtained after deducting rent and tax from the receipts.

sixth year of an indiction were 11½ s. less 28½ c. for the city tax (ἀστικά) while the village assessment was 4 s. public standard (or 5 s. less 14 c. on the goldsmith's standard), and 1 s. less 4 c. for thongs and cilicia.

There is some indication of a per capita assessment of 1 s. less 2 c. paid by individuals, but different contributors appear in different years and the nature of the assessment is quite uncertain. It seems to be paid by both men and women. The same sum is once paid to the hypodectes for pasture land but whether it was a tax exacted from leases in general cannot be determined. The taxes assessed for the property lying within the city territory seem to vary between 10-12 s. while the tax on village property lies between 4-5 s. annually. The tax in grain varies unaccountably though the income is reasonably steady. In the four years recorded the tax is a little less than a sixth of the entire receipts. After he paid his rent, almost a third of the balance went as taxes in kind. If the tax in money is converted into wheat at the rate of ten artabas per solidus, there would be very little profit on the arable land.

The estate of Theodora of Hermopolis consisted of the *dorea* of Protamus at Pesla and another property which after her death was called her πρόσοδος.[12] The area is unknown but in view of the fact that the estate was to be divided among her heirs the accounts for a period of four years were carefully kept. The receipts and taxes did not vary through the period and may be summarized as follows:

	DOREA	πρόσοδος OF THEODORA
Receipts in wheat	445½ art.[13]	565 art.
" " barley	106½ "	3 "
Tax	74⅙ art.[14]	113 " [14]
Annona	none	108⅓ art.[14]
Receipts in money	80 s. 20½ c.[15]	141 s. 19½ c.[16]
Tax in money	6 s. 18 c.	13 s. less 1¾ c.
Naulage	none	25¼ c.

The *dorea* seems to have enjoyed certain privileges of exemption, and it may have had the right of autopragia. The tax in wheat was

[12] P. Baden 95. See Private Estates.

[13] There were 8 artabas less in the 9th year.

[14] These amounts should be restored at the beginning of Col. IV.

[15] In line 278 the scribe neglected to include an adaeratio of 1⅔ artabas of wheat for 9 c.

[16] The heading of Col. xii, lines 254-5, should be restored as follows: [λήμμα(τα) σι]τι(κὰ) τῆς Προτάμου [δωρεᾶς (πρότερον) τῆς οὐσίας τῆς] μακαρίας Θεω[δώρας ι' ἰνδ(ικτίωνος)]. In line 398 ια' should be corrected to ι'. The uniformity of the tax throughout the four years may imply some form of emphyteutic grant.

entered as $77\frac{1}{6}$ art. but 3 artabas were always deducted, presumably as the cost of collection. On the other property where the tax was $104\frac{2}{3}$ art. there was added $8\frac{1}{3}$ artabas which were not forwarded to Alexandria and presumably went to the collector. The *dorea* did not pay anything to the annona as was exacted by the *apaetetes* for the property of Theodora nor was it liable for naulage. The tax in money for the *dorea* was entered as the public taxes (δημόσια) of Pesla σὺν κωμ( ) οικ( ). The restoration of this phrase is uncertain.

The receipts in money came largely from rentals, the largest coming from the farm (κτῆμα) of Onaniscus, which was probably a vineyard. The taxes in kind on the *dorea* were about a sixth of the income, while the tax in money was about one-thirteenth of the receipts. On the πρόσοδος the tax in kind was much higher while the tax in money was about one-eleventh of the receipts. Since the δημόσια seem to be based primarily on land, it would seem that cereal culture was taxed much more heavily than vineyard or garden. If so, we may have one reason for the extension of viticulture in the Byzantine period.

At Cynopolis Christodora seems to have had a third interest in an estate whose tax in kind was 41,170 artabas.[17] This included 4,849 artabas (arrears?) for the 15th indiction, 9,930 art. for the canonica of the 1st indiction, and an advance payment (προτέλεια) for the second indiction of 22,248 artabas. The sum for the 15th indiction is called "private expenses" (ἰδιωτικὰ ἀναλώματα) but since there was a supplementary charge of 15% it was probably arrears. There is no other report of this estate and the area is unknown.

At Oxyrhynchus payments made to Menas, the catholicus, seem to imply that he owned an estate of considerable size.[18] For the 15th year of the indiction the receipts were 98,321 artabas in the large chancery measure. Of this the embole took 79,069 artabas in the ordinary chancery measure, 6592 artabas were paid to the public posting station at Tacona, and 1780 artabas went to Alexandria for the church or city annona. The balance remaining in the hands of Menas was $20,858\frac{3}{4}$ artabas. A sum of 172 solidi was sent to Alexandria. In the following year (Col. III) the balance remaining was only 2,353 artabas and the amount sent to Alexandria was 2158 s. 14 c. Whether the payments in gold were for taxes or were delivered to the treasurer of Menas is uncertain.

We have discussed elsewhere the problem of determining whether

[17] P.O. 2026, early sixth century. See p. 55.

[18] P.O. 1906. It is not certain whether this was a private or imperial estate.

the accounts of the pronoetae on Apion's estate are tax returns or reports of the entire receipts and expenditures in their respective bailiwicks. When some member of the family held the office of pagarch, it is quite possible that the accounts of the estate and the pagarchy may have become confused, and this increases the difficulty of explaining the accounts.[19]

The estate probably varied in size from time to time. Thus in a register of payments to the arcaria the noble house (Apion's) contributed 76½ artabas of barley out of a total of 15,688 collected.[20] One might infer from this that the estate was relatively unimportant at the time or else did not pay much attention to raising barley. In another document the noble house of Oxyrhynchus contributed 87,818½ artabas of wheat while the noble house of Cynopolis contributed 52,800 (plus) artabas (P. O. 127). With these payments of grain there was an assessment in gold at the rate of 55½ solidi per 10,000 artabas for some unknown charge (*ὑπὲρ τοῦ διαγράφου τοῦ τηγάνου*), amounting to 780 s. This account does not mention Apion by name, and the editors suggest that it may be a municipal account, but elsewhere the noble house at Oxyrhynchus seems to refer to the family of Apion whose estate probably included property in Cynopolis. To be compared with this receipt is the notation on the verso of an account of Apion written in A. D. 586 which gives the receipts of wheat as 162,313 artabas and the gold sent to Alexandria as 18,512 s.[21] This would seem to belong to the estate records towards the end of the sixth century, but the notation may be the summary of the pagarchy. Definite proof is lacking. Similarly another document which apparently gives a summary of the receipts by pronoetae indicates receipts of 20,010 s. and expenses of 6917 s. (fractions omitted).[22] Since the individual accounts of the pronoetae on the estate of Apion show relatively small expenses except when extensive rebates were made to tenants in years of poor harvests, it is impossible to determine whether these accounts belong to the municipality or to the estate.

A large number of accounts published in the sixteenth volume of the Oxyrhynchite papyri belong to estates, but whether all come from the archives of the Apion family cannot be determined. There were other properties, including ecclesiastical and imperial estates, but no accounts of these can be identified.

[19] See Private Estates. [20] P.O. 2020. [21] P.O. 2196.

[22] P.O. 1918. The account in P.O. 144 (A. D. 580) gives the sum of 2205 s. paid by John the banker who was treasurer on Apion's estate (P.O. 2195). This was the third instalment and if he was acting for the estate it implies an annual tax in gold of 6615 s.

8. TAXATION OF THE SIXTH CENTURY: PAGARCHY AND VILLAGES

Some of the more important registers of the sixth century present a picture of the local taxation of that period. The most important register is that of Antaeopolis.[1] It is not dated but some internal evidence may point the way to its approximate period. The expelleutes is mentioned and therefore the document must antedate A. D. 545 when Justinian abolished the office. The reference to a new administration (*νέα διοίκησις*) may point either to some reform or to the accession of an emperor. Since there was a rebate of the gold tax called the largitionalia it is probable that the rebate followed the accession of an emperor, perhaps Justin or Justinian. Finally the appearance of unusually large forces at Antaeopolis and heavy assessments for some military expedition (*ἐξιτίωνος*) seem to belong to the campaign against the Blemmyes.[2] Probably this tax register belongs to the beginning of Justinian's reign.

The document may be summarized as follows:

Embole of grain	61,674 artabas
Account of the Annona	
Soldiers (Bis electi)	2,088 s. 5 c.
Supplies (?) for the expedition	1,995 s. 19¼ c.
Scythians of Justinian	473 s. 17½ c.
---- Philitiani[3]	1,198 s. 16½ c.
Animals for the post	207 s. 3 c.
Donkey drivers (*ὀνηλάται*)	28 s. ½ c.
Iron transport (armor, etc.)	37 s.
Physician of Antaeopolis	25 s.
For Abbot—, and guard of the city	18 s. 17¾ c.
Total	6,072 s. 21 c.

The canonica are as follows:

Largitionalia (after rebate)	1,737 s. 20 c.
Oversight (*ἐποψία*)	225 s. 16 c.
Wool (?)	201 s. 8 c.
Primipilus of bureau	48 s. *obryza* 2 s.

[1] P. Cairo 67057.

[2] The chronology of this war is not yet fixed. For Dioscurus see P. Cairo 67279, P. Lond. 1677. It is not impossible that the "new administration" refers to Edict xiii but the date of this is also controversial. See Malz, Byzantion, xvi (1942-3), 135ff.

[3] P. Flor. 297. Aphrodito apparently provided for two squadrons.

Silver taxes	37 s. 8 c. *obryza* 37 c.
Small fruits (μικρῶν εἰδῶν)	66 s. 2½ c.
Thongs and cilicians (κιλίκια)	44 s. 8 c.
Arrears of the canonica	963 s. 15 c.
(Indecipherable entry)	67 s. 20 c.
To the banker	87 s.
Obrusica (?)	50 s.
Supplement for transport	126 s. 8 c. *obryza* 5 s. 6 c.
Prayers for the emperor	20 s.
Fee to ----	10 s. 20 c.
To primipilus (for the expelleutes)	12 s. 10 c.
Total	3,707 s. 14 c. (including 8 s. 19 c. for *obryza*).

In Column II the entries deal with the gratuities for the various officials of the civil and military authorities. Since the most of the sums are lost, we give only the totals:

For gratuities (συνήθειαι)	339 s. 9 c.
For the officials & bureaus of the pagarchy	301 s. 22½ c.

The third column gives the taxes in kind as follows:

Arable land	40,403 ar. at 1¼ art.	50,503¾ art.
Islands	6,873 ar. at 1½ art.	10,310¼ art.
Reed-marshes	200 ar. at 23/40 art.	115 art.
Vineyards	2,578½ ar. at 7/12 art.	1,504 art.
Gardens	1,600 ar.	(no tax)
Total	51,655 ar.	62,433 art.
Excess		759 art.
Amount of embole		61,674 art.

Military annona

Wheat	6,729 art.
Meat (assessed on arable & vineyard)	106,179¼ units
Wine (assessed on vineyard)	212,358½ units
Barley	40,819¼ art.
Chaff	83,600¼ units

The payment in gold for the annona is an extraordinary exaction presumably due to the expedition against the Blemmyes. The normal force in the pagarchy consisted of 500 numeri, here called Justinian's Scythian Corps, but they were probably all local recruits. Whether this sum was an annual charge in addition to supplies of

goods, is uncertain. The Philitiani seem to be a branch of the cavalry. These and the Bis electi were probably imported for the expedition. The expense for animals (*ζώοις δρόμου*) is probably not for the public post but to provide mounts for the expedition. The physician of Antaeopolis was apparently loaned to the army for the duration of the war.

The assessments to provide these funds were probably based on land. On the assumption that two carats were deducted by the collector for every solidus, the sum of 2088 s. 5 c. for the Bis electi would represent an initial assessment of 53,577 c. which is evidently a tax of $1\frac{1}{3}$ c. per ar. on the 40,403 ar. of arable land. The item of 1995 s. $19\frac{1}{4}$ c. for supplies of the expedition represents an initial assessment of $52{,}354\frac{1}{4}$ c. If $1\frac{1}{4}$ c. were levied on arable and garden lands the total would be 52,500 c. These coincidences, though not mathematically exact, are sufficiently close to allow the assumption that some such method was used.

The most important item in the canonica is a payment of 1737 s. 20 c. for the largitionalia. The amount of the rebate is not stated but was probably a fourth. On the basis of a rebate of a fourth of the tax and the deduction of a fee of two carats per solidus for collection, the original assessment of this tax was 60,660 carats. Had a tax of $1\frac{1}{2}$ c. per ar. been assessed on the arable land the yield would be 60,603 c. The close correspondence of these figures almost compels the assumption that the largitionalia are the *δημόσια* or taxes imposed on arable land. So far as can be determined the canonica imposed no tax on the islands, swamps, vineyards or gardens, and no item in this list bears any logical resemblance to the area of these classifications.

Three taxes form a group by themselves: the primipilus of the bureau, the taxes in silver (*ἀργυρικῶν τίτλων*) and transport (*φόρετρον*). On each of these an extra charge called *ὄβρυζα*, amounting to one carat per solidus, was exacted and booked separately, though included in the final summary. At Oxyrhynchus the charge called obryza seems to be connected in some way with the arcaria but at Antaeopolis these taxes are clearly placed under the canonica.[4]

There is no tax in this register which bears any resemblance to a capitation tax. If the largitionalia are based on land, no other item is sufficiently large to qualify for the poll-tax. The taxes in silver (*ἀργυρικῶν τίτλων*) provided 48 s. and a district occupying nearly 50,000 ar. probably supported ten thousand people without difficulty.

The account for oversight (*ἐποψία*) does not occur elsewhere. No

[4] West and Johnson, Currency p. 132f.

petition for rebate of taxes could be granted until a survey had been made by an imperial agent (ἐπόπτης).[5] Gelzer advanced the theory that this was a fee for such an inspector. However, by this same Novel the office of expelleutes was abolished, and the Novel is therefore later than the date of this register. Possibly this charge is for oversight of irrigation works, or it may provide for a special guard against possible raids by the enemy while the army was in the field.

Whether ἐραίας represents a tax on wool or flocks or should be restored as ἐλαίας, as Maspero suggests, cannot be determined. At Aphrodito there was considerable interest in flocks and the guild of shepherds there paid a considerable tax about this time, so it is quite possible that Antaeopolis also had interests in this line. The tax on wool or on olives is not mentioned elsewhere.

The μικρὰ εἴδη probably represent a commutation of taxes in kind placed on garden fruits of various kinds. The meaning of κιλίκια is uncertain. Maspero suggests engines of war, Bell suggests sails. It probably represents some object of Cilician origin manufactured at Antaeopolis and commuted for a money payment. If νεῦρα means ropes and κιλίκια sails, this is probably a requisition for the fleet and if so should properly be classed under the annona.

The payment to the primipilus or head of the official bureau carries with it an extra charge of a carat per solidus for obryza. Apparently this is different from the usual gratuities (συνήθειαι) which carry no such extra charge. The fee to the chrysones does not seem to bear any relation to the tax in money; and the tax called ὀβρυσεικά, if correctly restored, is a flat sum of 50 s. which can hardly be identified with the fee levied by bankers at Alexandria and abolished by Justinian in Edict XI.

The arrears of the canonica may have resulted from the raid of the enemy. The charge for transport carries with it the supplement for obryza, and is therefore different from the charge entered with the embole of grain in the final column. This may be for the transport of army supplies, but if so we should expect it to be booked under the annona. It cannot be the fee of a solidus per thousand modii allowed to ship owners for transport of the annona to Constantinople, nor is it the amount provided for this transport by Edict xiii.[6] The assessment of 20 s. for vows for the imperial house may support the suggestion that this register followed immediately on the emperor's accession. The other entries in this column seem to be in the nature of gratuities but apparently in a different category from those in the succeeding column.

[5] Novel 128.

[6] See Transportation.

The fragmentary nature of Column II makes it impossible to give a detailed analysis but fortunately the totals show that 399 s. 9 c. were assessed for the gratuities of imperial (?) officials and 301 s. 22½ c. for the local administration of the pagarchy.

In the last column we are fortunate in having the area of the pagarchy in different categories and the rate of taxation in kind. This rate is uniform for each category and is unusually low compared to those found in Roman times. Since vineyards could not be profitably planted in wheat owing to difficulty of irrigation and giving proper care to the vines, it is somewhat surprising to find a tax in wheat both on vineyards and reed-marshes. The rate is low and probably these owners had arable lands as well.

The military annona is evidently not for the expeditionary force gathered at Antaeopolis for the war, but to supply the normal ration for the regular band of 500 numeri stationed in the pagarchy for whose support Aphrodito also contributed. The artaba of wheat furnished 80 lbs. of military bread, and 6,729 art. would supply 490 men without considering the assessment from Aphrodito.[7] The unit of meat and of wine is probably the liter. The meat is assessed in arable land and vineyard, perhaps at 2½ lbs. per ar. for arable land and 2 lbs. per ar. for vineyard. The assessment for wine is approximately 82 liters per ar. on vineyard.

The assessment of barley is unusually heavy if expressed in artabae. Ordinarily the capitum of barley is 4 choenices daily per mount, and this amount of barley should provide a year's supply for about 1118 capita. If the assessment is in modii, it would supply a third of that number.[8]

The charge for naulage and other expenses may be distributed between the annona for the soldiers and the embole for Constantinople, but it is no longer possible to determine the cost of either.

If it is correct to assume that the annona in money, amounting to over 6000 s., was an extraordinary assessment levied because of the war with the Blemmyes we may reconstruct the taxation of Antaeopolis in normal times somewhat as follows:

Largitionalia (without rebate)	ca. 1895 s.
Oversight (*ἐποψία*)	246 s.
Wool (?)	220 s.
Primipilus of bureau	50 s.
Taxes in silver	38 s.
Commutation of tax on small fruits	66 s.

[7] See annona. [8] *Ibid.*

(Unknown)	73 s.
Chrysones	87 s.
Obrysica (?)	50 s.
Fees to local officials	25 s.
Physician	25 s.
Fees for imperial (?) officials	370 s.
Fees for officials of pagarchy	327 s.
Transportation (embole, etc.)	940 s.
Total	4392 s.

This is manifestly an approximation only. Something should be added for the public post, and the annona of the numeri stationed permanently in the district. Other charges might bring the total to 4500-5000 s. per year. Since the pagarchy (excluding Aphrodito) had an area of 51,655 ar. the normal tax in money did not exceed $2\frac{1}{4}$ c. per ar. The average tax in wheat was $1\frac{1}{4}$ art. per ar. Translating this into money at the prevailing rate of 10 artabas per solidus, the average tax per aroura would be about $5\frac{1}{4}$ c. per aroura if expressed in gold, or about $2\frac{1}{2}$ artabas of wheat. After adding the normal annona for the regular band of 500 numeri the tax would be equivalent to about 3 artabas per aroura. In general the register of Antaeopolis indicates that the complicated system of the Roman period had been replaced by a much simpler one. The tax in kind was uniform for the arable land and there is no evidence of the various supplementary charges exacted earlier. It is quite possible that they were still exacted as charges for collection but they were retained by the collector and were not reported in the annual return. The exaction of the taxes in money seems to be simplified and if we may judge from this register they were largely if not entirely based upon property.

A register, presumably from Aphrodito, is more or less contemporary.[9] The taxes for the support of the bastagarii and two cohorts of the Pharaniti seem to point to the expedition against the Blemmyes. But since no provision was made for these in the budget of the fourth indiction as given at the end of the document, it is probable that the war was over and normal conditions restored. The taxes in the body of the document are presumably the assessments for the third indiction.

The classification of the taxes and the system of collection seem more complicated than at Antaeopolis. The payments are classified as δημόσια, κανονικά, χρυσικά, and ὑπὲρ ἀννώνης.

[9] P. Flor. 297.

The δημόσια include the following:

Gratuities of officials (names lost)	30 s. less 180 c.
The ἀπαιτησιμά and other assessments	8 s. less 48¼ c.
Gratuity of adjutant	1 s. less 3 c.
" of ecdicus	2 s. less 10 c.
Public taxes for 3rd indiction	3 s. less 12¾ c.
Gratuity for the guard of the bureau	8 s. less 44¼ c.
" for secretary of Antaeopolis	2 s. less 10¼ c.
" for ordinarius and ---	5 s. less 24 c.
For transport (φιλικόν) of embole	4 s. less 23¼ c.
Gratuity for the adjutant of ---	2 s. less 6 c.
Gold tax (χρυσικά) of the district K [ ]	7 s. less X c.
For the expenses of transport (φιλικόν)	131 c.

The canonica are as follows:

The canonica proper	13 s. less 74 c.
Gold payments for the gold canonica	29 s. less 155½ c.

The difference between these two entries is too subtle for our comprehension.

The charges for the annona are as follows:

Payments for the annona of iron transport	33 s. less 156½ c.
Annonae	79 s. less 333¼ c.
Annonae for the orders of the aide of accounts and for the gratuity of the tribune of the peace	11 s. less 57¾ c.
Annonae of the comes	6 s. less 35 c.
Annonae of 2nd squadron of Pharaniti	25 s. less 123¾ c.
Annonae of the Pharaniti and canonica	55 s. less 281¼ c.
" " " "	15 s. less 83 c.
Total	227 s. less 1070½ c.

In addition to the entries listed above, there were four pages missing, but from the closing summary it may be inferred that the average assessment was about 8 c. per person. Only one heading is preserved in part and it may be restored as " exaction of expenses for the transport of the embole." Under this heading, however, are certain payments for " charcoal and green fodder " (ὑπὲρ κάρβωνος καὶ χλοροφαγίης) (sic).

In this register the δημόσια are largely for gratuities to officials. There is nothing that corresponds to the largitionalia of Antaeopolis. From the point of view of the accountant the canonica and annona were lumped together.

The total of 338 s. less 1739¼ c. (line 445) evidently represents the assessments paid in solidi on the minus-carat system. To this was added 38 s. less 68 c., apparently collected independently by guilds (κοινά). The sum collected in the missing four pages was paid in sums of less than half a solidus and the total was entered separately. This collection was also supplemented by an undetermined payment from the guilds (line 458). The various stages in the bookkeeping are not clear and it is not known how the final total of 360 s. less 4 c. was arrived at.[10]

The entries which follow presumably give the budget to be collected in the following year which is the fourth year of the indiction. While the total (353¼ s.) is approximately the same, the classification is quite different. The following is the summary:

Annona	159¼ s.	public standard
Canonica	88½ s.	" "
Expenses (ἀναλώματα)		
ἐντάγιον of commentariensis	2 s. less 4 c.	goldsmith's standard
Tower guard	1 s. less (2 c.)	" "
Guard of bureau	2 s. less 4 c.	" "
Tribune of peace	1¼ s. less (2 c.)	" "
Tribune of Antaeopolis	2 s. less 4 c.	" "
[Aide] of ordinarius	1¼ s. less (2 c.)	" "
Primipilus of bureau	1¼ s. less 4 c.	" "
(Uncertain reading)	2 s. less 4 c.	" "

Total in goldsmith's standard 12½ s. less 24 c., which in the public standard is 12½ s. less 54 c. (i. e., after deducting 2½ c. per s. on the 12 full solidi recorded in the above list).[11]

To the account of the adjutant	2 s.	public standard
To Thomas apaetetes (of annona)	2 s. less 6 c.	public standard
Delegatio	1½ s.	" "
Expelleutes	6 s.	" "
Adjutant, Abraham	3½ s. less 14 c.	" "
Riparius	24 s.	" "
Gratuity (φιλικόν)	8 s.	" "
(Uncertain reading)	3 s.	" "
Total	50 s. less 20 c.	" "
Grand Total (adding 12 s. less 54 c.)	62 s. less 74 c.	" "

[10] Probably the total of 376 s. less 1187¼ c. can be restored in line 457.

[11] This offers definite proof of the deduction of collector's fees at Aphrodito. The half carat was allowed for weighing (ῥοπή). Why the following items were collected in the public standard is unknown. Probably there was no fee allowed for collection.

To the right of this column there are certain entries which are not clear but it is possible that the $46\frac{5}{12}$ s. represents the assessment for the guilds, and the total of $305\frac{5}{6}$ s. represents the total assessment from Aphrodito.

The officials to whom gratuities were paid in the fourth indiction are different from those to whom they were paid in the preceding year if the body of this register represents payments for that year.

If this document is contemporary with the register of Antaeopolis, the system of taxation seems quite different. The δημόσια at Aphrodito are devoted largely to gratuities to officials, and different officials appear in the body of the text for the third indiction from those in the fourth indiction. The total collected in the third indiction seems to be 360 s. less 4 c. public standard, while the total of the fourth indiction seems to be $305\frac{5}{6}$ s. The annona of $159\frac{1}{4}$ s. probably was for the maintenance of the imperial army, while the canonica of $88\frac{1}{2}$ s. went to Constantinople. The remainder went to defray the cost of local or provincial administration.

The accounts of Aphrodito are preserved in part for five years [12] and may be summarized as follows (fractions omitted):

YEAR	12	13	14	1	9
Receipts . . .	584 s.	569 s.	537 s.(?)	532 s.	[—]
Payments .	590 s.	566 s.	538 s.(?)	535 s.	[—]
Canonica etc.	402 s.	403 s.	403 s.	257 s.	397 s.
Annona .	68 s.	73 s.	53 s.	104 s.	64 s.
Fees, etc. .	[—]	61 s.(?)	[—]	69 s.†	42 s.†

The canonica and annonae were usually paid in three instalments. Only two payments of the annonae are preserved for the 14th year. In the 14th year this is said to be for the most noble Numidians, apparently the numeri stationed at Antaeopolis. For the 1st and 9th years the payments were made to the actuarius of Antaeopolis, and the first instalment (1st year) of 64 s. $22\frac{1}{2}$ c. was an adaeratio of wine and meat. The great increase in the annonae of this year and a corresponding decrease of the canonica may indicate preparations for the war with the Blemmyes. The incomplete nature of the documents makes it impossible to determine whether the gratuities (συνήθειαι) were paid every year. In the 14th year the deficit was made up by a contribution from a protocometes but there is no evidence that the protocometae were responsible as a body for such

[12] P. Cairo 67056 and P. Lond. 1670 (14th year); 67058 (12-14th years); 67287 (1st year). P. Cairo 67210 and 67212 probably belong to the series. For receipts of payments of gold see P. Cairo 67033-42; P. Lond. 1664.

deficits. The miscellaneous expenses of the village include the purchase of food stuffs (eggs, fowl, wine, etc.) apparently for the entertainment of officials.

These accounts indicate that the budget was carefully prepared and receipts and expenditures usually balance. The taxes in money, especially the canonica, seem to be determined for the period of an indiction or a five-year part of it. Extraordinary conditions may alter the quota to be assigned to the canonica and annonae. The latter amount seems to be determined by the actuarius of Antaeopolis, who probably represents the duke.

The sources of the village revenues are probably derived from the public taxes (*τὰ κωμητικά*). Some land was leased by village officials. The guild of hunters (SB. 6704) paid for their concession, and some revenue may have been derived from baths, market booths, and other sources.

The keeping of careful accounts may be one of the requirements of autopragia which Aphrodito enjoyed. The collection of the taxes seems to be entrusted to an officer called the hypodectes who is also the controller of the local treasury and who makes payments therefrom on orders signed by two protocometae.

The embole of Aphrodito varied. From two successive indictions payments of 5759 and 4880 artabas probably indicate differences in the Nile flood.[13] Two other payments, 6053 artabas for a 13th year of the indiction and 6100 for some unknown year, indicate a fairly steady rate of taxation.[14] This village paid about a tenth of the amount of grain assessed on Antaeopolis and probably the total assessments in gold bore about the same ratio.

The village of Aphrodito enjoyed the right of autopragia, that is it collected its own taxes without the intervention of state officials. This may account for the peculiar assessment of taxes as displayed by the register. The tax-collector was allowed to deduct two carats per solidus and a solidus was reckoned as any sum between 16 and 24 carats. Hence in distributing the assessments of the various taxes the collector would not collect the sum of 16 solidi from one person where his fee would be 32 carats, but he would distribute the amount in such a way that twenty-three people would pay sums 1 s. less $7\frac{1}{2}$ c. or 1 s. less 7 c., and thus he could collect 46 c. The collection was made in this village in the goldsmith's standard. When he deducted the 2 c. per solidus the amount remaining was called the public

[13] P. Flor. 292-8. This taxation may be profitably compared with the Arab exaction of 6951 solidi about A. D. 700 (P. Lond. 1412).

[14] P. Cairo 67030, 67280. Cf. for Tacona (P.O. 2021); for Spania (P.O. 1997).

standard. In the budget for the fourth indiction in the above register there were certain payments for which the fee of $2\frac{1}{2}$ c. per solidus was allowed. This seems to indicate that in certain taxes the fee of half a carat per solidus for weighing (*ῥοπή*) could also be deducted.[15] The entries in the body of the register show that the collector went to considerable trouble to distribute the assessments, and some residents paid 1 s. less 10 c. or the like on seven or eight different assessments instead of paying a large sum for one tax. The tax-payer did not suffer, but the collector increased his commissions. The government was the only loser in this game, but the remedy was to increase the assessment.

Another register which comes from Aphrodito or its vicinity may be the account of a village or of an estate, but it also has the peculiarity of payments in a solidus less 8-10 carats.[16] Again assessments were distributed in small amounts called *δόσεις*, of which seven are preserved in part. Each was collected by tribes or *φυλ( )*. Thus the steward (*οἰκονόμος*) Abraham belonged to the sixth tribe and Ptolemy, son of Victor, to the seventh. Unlike the register in P. Flor. 297, where the same person with rare exception did not pay twice for the same tax, Abraham, the steward, made five separate payments in the fourth *δόσις*, possibly for different properties under his control. There is no evidence for what purpose these payments were made, but it is probable that the collector was more interested in collecting his fees, and the purpose for which the money was collected could be determined later. The total of payments for five *δόσεις* was about 269 s. This register is probably a tax document but in the absence of specific information it may be Byzantine or Arabic. Since the Arabs followed the Byzantine practice it probably indicates a system which had been developed by some ingenious Byzantine collector who desired to get a maximum fee for commissions.

Another document,[17] which cannot be more precisely dated than the sixth or seventh century and said to come from Panopolis, may be summarized as follows:

Gratuities (*συνήθειαι*)	Land owners	16	*σαλάρια*	85 s. $13\frac{1}{12}$ c.
"	House owners	6	"	130 s. $21\frac{1}{4}$ c.
Public taxes (*δημόσια*)	Land owners	59	"	748 s. $11\frac{1}{8}$ c.
" "	Artisans			794 s. $1\frac{5}{6}$ c.

[15] Currency in Roman Egypt, 140ff. A similar deduction is found in P. Cairo 67056 where 8 s. less 19 c. goldsmith's standard is said to be 6 s. 13 c. In this case only 2 c. per s. were deducted. There is as yet no indication when the charge for weighing could or could not be deducted.

[16] P. Lond. 1673.

[17] P. Hamb. 56.

Supplement (*πρόσγραφον*) Artisans		32 s. 8 c.
Gratuity for canal (*συνηθ. τῆς διώρυγος*)		3 s. 8 c.
Liturgists (*λειτουργοῦντες*)		12 s.
" of Thmouth		1 s.
Distribution? (*κατανομή*) of canal		1 s.
Assessment per capita (*διάγραφον*)	24 *σαλάρια*	230 s. $17\frac{5}{6}$ c.
Total		2041 s. $9\frac{1}{8}$ c.

The *σαλάρια* are otherwise unknown and possibly may represent the division of taxes into small payments to enable the collector to get his maximum commission. The guilds, however, collect their own assessments and therefore are not concerned with the *σαλάρια*. The *δημόσια*, collected from property owners as well as artisans, cannot be based solely on land. It is surprising to find artisans paying more than landed proprietors, and this village must possess some important and profitable industry.[18] The *πρόσγραφον* seems to be a supplementary levy but it stands in no particular relation to the main tax. The *διάγραφον* may be an assessment per capita for some special purpose, but whether it is a poll tax is uncertain.[19]

There are few documents from Oxyrhynchus which can be classified as the tax of the pagarchy as a whole and none can be dated precisely. The estate of Apion seems to have been extensive and to have had the right of autopragia. Thus the verso of an account, which clearly came from his archives and was therefore written after A. D. 586, contains a memorandum of receipts from villages as 162,313 art. of wheat and 18,512 s. as the *προσφορὰ Ἀλεξανδρείας*.[20] The amount in gold corresponds fairly closely to that recorded on the verso of P.O. 1918 which records a total of 20,010 s. $15\frac{1}{4}$ c. and expenses of 6,917 s. 17 c. But whether the pronoetae are officials of Apion or of the pagarchy is uncertain.[21]

The assignment of tax registers to the pagarchy is largely a subjective matter. One document is dated in the seventh century by the editors but it is interesting to observe that the tax in wheat was converted into gold.[22] The emperor Mauricius (A. D. 582-602) is said to have sold all the grain of Egypt and converted it into gold.

[18] Strabo mentions Panopolis for its weaving. The continuity of tradition may be shown by the fact that its modern counterpart Akhmîm is still famous for the manufacture of cheap cotton fabrics.

[19] See Assessments.

[20] P.O. 2196.

[21] The ratio of expenses to receipts is quite different from that found in accounts that clearly belong to Apion.

[22] P.O. 1909.

Whether this document reflects his policy is impossible to say.[23] The assessment is as follows:

Oxyrhynchus and Cynopolis

350,000 artabas at 10 artabas per s	35,000 s.
Tax in gold	24,500 s.
(Extra charge) $15\frac{1}{4}$ s. per thousand	

Heracleopolis

350,000 artabas at 10 artabas per s	35,000 s.
Tax in gold	22,500 s.
(Extra charge) $15\frac{1}{4}$ s. per thousand	

Nilopolis

10,000 artabas at 10 artabas per s	1,000 s.
(Remainder of document lost)	

This *κατάλογος* or register probably includes the entire pagarchy including estates whose right of autopragia may or may not have been lost. The tax is high, but if Apion collected 18,512 s. in addition to the tax in wheat, it is not an impossible sum.

Another document dated in the seventh century by the editor gives a general rebate of a fourth of the tax. Since the Emperor Tiberius granted the remission of a year's taxes to be spread out over four years, we suggest the possibility that this document may belong to that period.[24] According to this account the embole was $25{,}372\frac{1}{2}$ artabae. The fourth of this was rebated and converted into gold. The taxes in gold (including an adaeratio of barley for the government and the gratuities to the officials of the bureaus) were 2297 s. $10\frac{1}{2}$ c. Of this amount 300 s., probably the gratuities to the officials, could not be rebated, but there was a rebate of a fourth on the balance.

There is a third document dated in the sixth or seventh century which acknowledges the receipt of 2,016 solidi, and the recipient credited 1,008 s. as the first payment (*καταβολή*) for Oxyrhynchus and the balance as the first payment for Cynopolis.[25] Since taxes

[23] John of Nikiu 95. 21.

[24] P.O. 1907; (Justinian), Novel. 163.

[25] P.O. 1843. This may come from a great estate lying in both districts. The payment in gold is very much less than in P.O. 1909. The payment in P.O. 144 (A.D. 580) for the third instalment of the year was 1440 s. (*ὄβρυζα*) and 720 s. in currency of the Alexandrian mint (?) with extra charges of 45 s. or a grand total of 2205 s. This was paid to the apocrisarius or imperial agent, but whether the tax was municipal or for a private estate is uncertain. John, the banker, was treasurer of Apion's estate at this time (P.O. 2195).

were paid in three annual instalments it is a fair guess to assume that Oxyrhynchus and Cynopolis were each assessed 3,024 s. per year.

These three documents give some idea of the taxation of the late Byzantine period. Unfortunately there is no estimate of area to guide us as at Antaeopolis, and we cannot determine the rate. If Apion was able to collect 162,000 artabas from his estate ca. A. D. 586, the levy of 350,000 artabas on Oxyrhynchus and Cynopolis (if this included private estates) was not intolerable.

In Edict xiii, Justinian sets the tax in grain at 8,000,000 units, presumably artabas. The rate on arable land at Antaeopolis was $1\frac{1}{4}$ artabas per aroura. Justinian could collect eight million artabas by applying this rate uniformly to 6,400,000 arouras of arable land. This is not an unreasonable estimate of the area of arable land at that time. How much was in flax, vineyard or garden it is impossible to say. The evidence implies that viticulture had increased and that wine had replaced beer as the favorite drink of the Egyptians.

The taxes collected in gold are more difficult to determine. The Arab historians who record that the Romans derived twenty million solidi (dinars) from Egypt cannot be trusted. The statement that the revenue in the 20th year of the Hegira (A. D. 640-1) was one million dinars but two years later rose to twelve million is hardly credible either, though the figure of a million solidi is perhaps not far from the truth.

Since no dependence can be placed on the Arab records the only recourse is to attempt to evaluate the evidence from the papyri, and here we are compelled to make a good many assumptions. If, for example, the normal tax assessment on 40,000 ar. of arable land was 5,000 s. per year, and the arable land of Egypt was 6,400,000 ar., the tax on land would approximate 800,000 solidi. The register from Panopolis indicates that industrial centers paid a relatively high tax on trades. If we are to believe Procopius, Justinian made special assessments (*διαγραφαί*), and with other taxes the total may have been a million solidi per year. This does not mean that the whole of this sum went to Constantinople. The local administration, the bureaus and officials of the diocese and the army probably absorbed a large amount, but no estimate is possible. Justinian seemed to think that the total revenue was absorbed or stolen, but whether he succeeded in remedying the situation is unknown.

9. FEES AND PERQUISITES OF OFFICIALS

The practice of winning the favor of high officials by gifts or splendid entertainment was probably ancient. Augustus was fond of gifts and bequests and the practice of gifts at the New Year was recognized. It was a step in advance when the aurum coronarium was demanded from the subjects. Though the tax was abolished the practice remained. By the middle of the sixth century the perquisites of the Augustalis and the clerks in his bureaus were regulated by law (Edict xiii), and the tax registers of Antaeopolis and Aphrodito prescribe the amounts to be paid as *συνήθειαι* for various officials in considerable detail. At this time the word was probably a synonym for salary in many cases.

Various terms are used for these fees, which in the sixth century are generally known as *συνήθειαι*. The gifts at New Years are called *καλανδικά*. Other expressions such as *ἰμπετικόν*, *κωμμόδιον*, *σπόρτυλα κούμουλοι*, and *τὸ δηνάριον τοῦ μοδίου* indicate a Roman origin. Such terms as *εὐμένειαι*, *διάπεισμα*, *σπουδή*, *παραμυθία*, *παραπομπικά*, *ἐνδοματικά* and *φιλικόν* indicate a good will offering which probably originated as a kind of bribe to secure the favor of officials.

The fee exacted by the tax-collector is not mentioned expressly in the papyri. A document of the ninth century gives this statement: *ἐκτὸς δὲ τούτων εἴωθεν ἀπαιτεῖν καὶ ὑπὲρ τῆς ἑαυτοῦ ὠφελείας ἐφ' ἑκάστῳ νομίσματι συνήθειαν νομίσματος δωδέκατον ἤτοι μιλλιαρήσιον α' ἤγουν φόλλεις κδ'. καὶ λόγῳ ποδοκοπίου τοῦ ἔλκοντος ἀνθρώπου αὖτου τὸν τελεστὴν πρὸς τὸ δοῦναι τὸ ἀνῆκον τῷ δημοσίῳ ἐλατικόν φόλλεις ιβ', ἤτοι τοῦ νομίσματος εἰκοστὸν τέταρτον.*[1] This fee of a twelfth which went to the practor reminds one of the *προσδιαγραφόμενα* and *προσμετρούμενα* which Augustus *added* to the taxes in money and grain. These supplements may have constituted the fees which went to compensate the tax collector,[2] but they disappear with Diocletian.[3] There were extra levies on grain, but except for a charge called *κάθαρσις* on a money payment early in the fourth century, which is a little less than the usual percentage of the *προσδιαγραφόμενον* (1½ oz. on a payment of 2 lbs. 3 oz. 17 gr.), supplementary charges are rare in payments of money. In the latter half of the century certain gold payments were made either with or without charges for expense (*ἀναλώματα*), weighing (*σταθμός*), or fineness of gold (*ὄβρυζα*)

[1] Analecta Graeca a monach. Bened. edita p. 300. Probably 8th century or later.
[2] For supplements in grain see p. 240.
[3] P.O. 1653, A. D. 306.

These were presumably charges for collection and according to later standards would be regarded as *συνήθειαι*. In the sixth century certain taxes collected on the private standard at Oxyrhynchus had two carats deducted on every payment over 16 c.[4] The balance was paid into the public treasury, with sometimes an extra collection for *δοπή* (a half carat per solidus), and sometimes a charge of an eighth of a carat per solidus for *παραλληλισμόν*. At Aphrodito there was a fee of $2\frac{1}{2}$ c. per solidus on payments of over 16 c. on the goldsmith's standard.[5] This was presumably the fee of 2 c. per s. for the tax collector and $\frac{1}{2}$ c. per s. for the zygostates.

Payments for the *ἀρκαρικά* were somewhat different. At Antaeopolis a carat per solidus seems to have been exacted over and above the solidus and this extra amount seems to have been sent to Alexandria. Whether the tax-collector was allowed to deduct his fee cannot be determined. At Oxyrhynchus there was apparently a difference in practice. In one case a woman, whose tax to the arcarius is evidently a solidus, deducts $1\frac{1}{2}$ c., since her estate evidently has the right of collecting its own tax (autopragia). In another case where the tax collector required payment in gold instead of in grain he collected $1\frac{1}{2}$ c. additional on every solidus and this was evidently sent to Alexandria.[6]

Payments in *ῥυπαρὰ νομίσματα* show a deduction of $6\frac{3}{4}$ c. per solidus.[7] Part of this may be a charge for collection. Similarly the difference between payments called *ἀρίθμια* and those called *ἐχόμενα* implies a charge of 7 c. per s.[8]

In A. D. 367 an imperial constitution mentions a tax of 1% paid by imperial tenants (coloni) which went into the arca of the res privata.[9] A similar levy apparently in the collection of the annona of Alexandria was divided up, half to the *susceptor* and half to the annotator or other clerks.[10] In A. D. 369 the *susceptor* was allowed 1% in the collection of grain (aridi fructus) but 5% for wine and pork.[11] In A. D. 386 the *susceptor* was allowed 2% for the collection of grain, $2\frac{1}{2}$% for barley and 5% for wine and pork. This constitution was repeated in the Justinian Code, and presumably this fee remained in force from 386 to 535,[12] but whether this constitution also applied to Egypt is not certain.

[4] Currency in Roman and Byzantine Egypt, 140ff.
[5] P. Flor. 297. See p. 280.
[6] See p. 312.
[7] Currency, 152.
[8] Ibid. 147.
[9] C. Th. x. 1. 11; xii. 6. 14.
[10] C. Th. xii. 6. 3, A. D. 349.
[11] C. Th. xii. 6. 15. Cf. P.O. 1908 *ὑπὲρ ξηρῶν*.
[12] C. Th. xii. 6. 21: C. J. x. 72. 9. According to C. Th. xii. 6. 30 (= C. J. x. 72. 13. A. D. 408) there were two susceptores for each province. In the Egyptian provinces his

The first occurrence of *συνήθεια* in the papyri appears in P. Leipz. 102, said to belong to the fourth century, but which may equally well be dated in the fifth. Here the adjutant of the hypodectes carried 120 s. to Alexandria where he paid the tax in gold, made private purchases of spice and other commodities, and paid *ὑπὲρ συνηθείας* to officials of Alexandria (*οἱ ἐπικείμενοι τῆς Ἀλεξ.*), to Victorinus, the registrar, and to the oeconomus.

In the sixth century the term is used more frequently in the papyri and in his eighth Novel Justinian prescribed the *συνήθειαι* of various officials in the provinces in A. D. 535 as follows:

A. The governor (*ἄρχων*) of Augustamnica I.

3 chartularii of the sacred cubiculum. ...	9 s.
Primicerius of the tribuni notarii	24 s.
To the adjutant of the primicerius.	3 s.
To the bureau of the prefects	40 s.

B. The governor of Aegyptus I, II, and Augustamnica II. each.[13]

3 chartularii of the sacred cubiculum .. .	9 s.
Primicerius of the tribuni notarii.	15 s.
To his adjutant	3 s.
To the bureau of the governors.....	36 s.

In Edict xiii the reorganization of the administration led to a combination of the bureau of the dux and Augustalis into one with a membership of 600. The governor received a salary of 40 lbs. of gold (2880 s.) and the usual *συνήθειαι* and *καλανδικά* from the vindex of Alexandria. His assessors who assisted in administering justice were allowed 120 s. and the bureau was allowed 1,000 s.[14] The duke of Libya and Mareotis received in place of the usual capita and annonae in kind $1005\frac{1}{4}$ s., and for those in money 400 s. while his bureau was allowed $187\frac{1}{2}$ s.

The question that is raised by the eighth Novel is whether *συνήθεια* means salary or whether it is the regularization of the gifts from the provincials. It is clear that the *συνήθειαι* were ordinary collections in the municipalities and villages of the sixth century. However there appears to be no uniformity in the exaction.

The municipal accounts of Aphrodito indicate that contributions for official gratuities were paid in the 8th year of the indiction cycle,

position must have been lucrative. If Egypt furnished 8 million artabas, two percent of this divided up between the different officials gave a tidy income to the susceptor.

[13] The provinces of Upper Egypt were omitted from this list.

[14] Divided up among 600 this was hardly a living wage especially as the lower ranks or juniors received less than the others.

the 13th year, the 1st year, and in the 3rd and 4th years. In the 8th and 13th years the payments were comparatively heavy but in other years the payments were much lighter and different officials appear.[15] The following list gives a conspectus of three accounts.

YEAR	4	8	13
Riparius	24 s.	—	—
Expelleutes	6 s.	—	3s.
Commentariensis	44 c.	48 c. (plus)	46 c. and 40 c.
Aide (of duke)	45 c.	—	45 c.
Aide of accounting bureau	—	4 s	—
Bureau guards	44 c.	—	36 c.
Tribune of the peace	30 c.	36 c.	25 c.
Ordinarius	22 c.	—	—
Embolator	8 s.	5 s.	—
Hegemonicus (2)	—	2 s. and 1 s.	—
Singularis	—	6 s. and 4 s.	40, 34, 19 c.
Divine delegatio	—	6 s.	—
Apaetetes	42 c.	48 c.	24 c. (?)
Tribune of Antaeopolis	44 c.	48 c.	40 c.
Imperial statues [προσώπ(ων)?]	—	12½ s.	—
Numerarius			5 s.
Tracteutes (2)			5 s.
Oarsmen (πολυκωπίται)			25 c.
σπουδή (for some unknown)			5 s.
Domesticus (καλανδικά)			5 s.
Defensor of Antaeopolis	—	—	2½ s.
" " (διατροφή)	—	—	6 s.
Castrensis	—	1 s.	
Officer of Pharanitae	—	1 s.	

The 8th year of the indiction (Cairo 67054) given above is not included in a municipal account and is headed: *γνῶσις τῶν ἐξστραορδιναρίων καὶ ἑτέρων συνηθειῶν*. None of the documents can be dated but the mention of the expelleutes shows that these lists must be prior to A. D. 545 when the office was abolished (Novel 128). The mention of the Pharanitae may imply that this document is contemporary with P. Flor. 297 and Cairo 67057. The assessments of the 8th year as given above, however, differ materially from those given for

[15] For the municipal accounts see p. 283. The 4th year is found in P. Flor. 297 Col. iv, the 8th year in P. Cairo 67054, the 13th year in P. Cairo 67058 (Col. iii). In Col. ii of the last document the payments for the 12th year seem to be preserved and very few gratuities were paid. In Col. vi the accounts of the 14th year indicate no payments. In P. Cairo 67287 the payments for the 1st year include gratuities for three or four officials. Similarly the accounts for the 8th and 9th years (P. Cairo 67330) show few gratuities.

the 4th year of P. Flor. 297, and these again are not found in the assessments recorded for the preceding year as given in the preceding columns of that text. The following officials received gratuities:

Aide of bureau of accounts	21 c.
Defensor	38 c.
Secretary of Antaeopolis	37½ c.
Ordinarius and ----	4 s.
Tribune of peace	?

The evidence from other accounts may be cited briefly. Thus an account, presumably from Aphrodito, allowed 4 s. each to the domesticus and hypodectes and 1 s. each to the primicerius and notarii.[16] Another document, whose source is unknown, allowed 2 s. to the prefectural officer (ἐπαρχικός) and 1 s. each to the ἐκβιβαστής, scholasticus, commentariensis, secretary, defensor, and physician.[17]

The evidence seems to imply that the συνήθειαι of officials varied materially from year to year. Whether Justinian devised a system that was more consistent and fell upon the communities with some equity cannot be determined. The municipal accounts of Aphrodito imply that receipts and expenditures were fairly even over what is apparently a range of two indiction cycles, or thirty years, but even these accounts indicate considerable variations in the amount of gratuities as well as the recipients.

The tax register of Antaeopolis gives the συνήθειαι of the government bureaus as follows:

Primipilus (in name of expelleutes)	12 s.	12 c.
Aide	—	
Embolator and ———	12 s. (?)	
Embolator (in name of expelleutes)	—	
Canonicarius and palatinus	—	
Vicarius of Antaeopolis	—	12 c.
Tribune of Bis electi	—	16 c.
Keeper of prison	—	16 c.
Edict of praeses	3 s.	
Aide of master of accounts	12 s.	
Bureau of annona	20 s.	
Aide	—	
Bureau of taxes in money	12 s. (?)	
Aide	2 s.	
Numerarius of ducal bureau	6 s.	
Aide	5 s.	14 c.

[16] P. Lond. 1672. [17] PSI. 891.

Cancellarius of duke	12 s. (?)	
Four scholae of duke	3 s.	6 c.
Official of bureau	2 s.	2 c.
————	—	
————	1 s.	x c.
Advocatus fisci	6 s.	x c.

The above total indicates payments of 111 s. 6 c. while the total indicated on the papyrus was 339 s. 9 c. leaving a balance of 228 s. 3 c. to be accounted for in the lost entries. Evidently some of the missing fees must have been high. The payments for the administration of the pagarchy are not definitely called *συνήθειαι* but they may properly be included here. The amounts are as follows:

————	43 s.	
Clerks of administration of pagarchy	124 s.	6½ c.
Tracteutae	50 s.	
Hypodectes	36 s.	
Logographos	12 s.	
Curiales for ———	36 s.	16 c.
Total	301 s.	22½ c.[18]

Although the *συνήθειαι* are not mentioned expressly in the Apion records, there were occasional payments to the embolator which may be of similar nature.[19] The house of Theon paid 7 s. less 17½ c. (private standard) to two embolatores and the fee paid to the clerk of the canon of the embole was 4 s. less 16 c.[20] In another document the total of payments to the embolator was 22 s. 16 c. (Alexandrian standard).[21]

A document from Panopolis, said to belong to the sixth or seventh century and prior to the Arab conquest,[22] records *συνήθειαι* of 85 s. 13½ c. collected in sixteen *σαλάρια* from land-owners, and 130 s. 21¼ c. collected in six *σαλάρια* from house-owners. In addition there was a payment of 3 s. 8 c. *ὑπὲρ συνηθείας τῆς διώρυγος*. The purpose of the last payment is unknown. The total of the ordinary *συνήθειαι* is somewhat less than a tenth of the total.

From Hermopolis Flavius Basileus, supervisor of contracts for the

[18] P. Cairo 67057. This total should be compared with the 300 s. in P.O. 1907 on which no rebate was allowed. In all probability the latter account represents the payments for gratuities from the Oxyrhynchite pagarchy.

[19] P.O. 1911 (line 209); 1914 (line 6), 1919.

[20] P.O. 1999, 2009.

[21] P.O. 1908.

[22] P. Hamb. 56.

lading (*ἐπικείμενος τῆς χειρογραφίας ἐμβολῆς*), acknowledges the receipt of 1 s. 22¼ c. to the adjutant of the bureau of accounts and forwarder of the division of Dioscurides.[23] Of this amount 1½ s. are said to be *ὑπὲρ τοῦ βοηθοῦ τοῦ λογιστηρίου* and the balance of 10¼ c. *ὑπὲρ μέριδος Διοσκουρίδου*. Evidently the adjutant provided the fee from his own salary or perquisites.

In addition to the *συνήθειαι* proper, most of which are found in the sixth century, there are numerous other payments which may properly be grouped here:

ἀναλώματα. Mentioned in the collection of the aurum tironicum of the fourth century but with no indication of the percentage (P. Leipz. 61-2, P. Flor. 95). In the sixth century the sum of 103 s. 9¼ c. *ὀβρ.* was collected for the local bureau of administration (P.O. 1919). To this was added 68¾ c. *ὑπὲρ ἀναλώματος* making a total of 106 s. 6 c. public standard. This seems to be a combination of two charges ½ c. and ⅙ c. per s., possibly a charge for weighing and some other charge. The same document gives a charge of 129 s. 14 c. *ὑπὲρ ἀναλωμάτων* for the governor and his assessor (*σύμπονος*) holding assizes at Oxyrhynchus. This was collected in the Alexandrian standard and no fee was allowed in such cases (Currency, 140 ff.) This fee is sometimes found in grain payments. (See p. 243).

δαπάνη. Mentioned in P.O. 2041 in a private sale and probably not a tax, unless it is a charge for weighing. Receipts of payments at Arsinoe *σὺν δ'* (Kl. Form. 675, 682, 719, 730-1, 747) may imply an extra charge of a fourth but more probably this should be restored *σὺν δ(απάνῃ)*.

τὸ δηνάριον τοῦ μοδίου. This was collected along with payments of the *embole* and Wilcken suggests that this fee, like the *ὀβολόν* earlier and the *κούμουλοι* later, went to the captains for transport (Chrest. 433 = P. Flor. 75). With the depreciation of the bronze currency the payment in money could have meant little in the latter half of the century. See Kase, Papyrus Roll; P. Goodspeed 14 (A. D. 343); P. Cairo Preisigke 34 (A. D. 315). In the latter the fee seems to be a denarius per 100 litres of chaff.

διάπεισμα. This was exacted in collections of grain. See p. 243.

ἐνδοματικά. Not mentioned in the papyri, but in Edict xiii Justinian forbade the exaction in connection with the naulage of grain to Constantinople.

ἐπίμετρον. In A. D. 369 Valentinian permitted the exaction of 1% in the collection of grain and 5% in the collection of wine and pork (C. Th. xii. 6. 15). The term does not appear in the papyri, and it

[23] P. Leipz. 90 Superintendent of lading the *delegatio* (?)

is uncertain whether it applied in Egypt. For supercharges in the collection of grain see p. 240. Apparently this fee went to the susceptor (see C. Th. xii. 6. 21, A. D. 386), when it was later increased to 2% on wheat, 2½% on barley and 5% on wine and pork. There were two susceptores allowed in each province by a law of A. D. 408 which Justinian retained (C. Th. xii. 6. 30; C. J. x. 72. 13).

εὐμένεια. Paid in connection with the *embole* (P. Lond. 1660, 1753).

ἰμπετικόν. This seems to be a variant of the payments in money to speed the shipments of grain. P. Cairo 67057.

καλανδικά. Gifts at the beginning of the year were apparently a common feature of official life. Probably the earliest mention in papyri is PRG. v. 61 C. *verso* from Heracleopolis and dated in the fourth century by the editor (here the mention of the four scholae [Frag. B] seems to favor a later date). In P. O. 1875 the clerk does not hesitate in expressing his displeasure that the customary gift has not been received (Cf. P.O. 1869). The sum of 5 s. was set apart in P. Cairo 67058 (col. III) for Taurinus, the domesticus. In Edict xiii the Augustalis is authorized to receive the customary gift from the vindex of Alexandria. The *θεία δωρεά* of P. O. 2002 is probably a contribution of the same sort.

κούμουλοι. This is evidently the Latin cumulus and probably represents a payment for the ship captains. *Supra, s. v. τὸ δηνάριον.* P. Flor. 75; P. Goodspeed 14. Wilcken refers to C. Th. xiii. 5. 7 which allowed for transport from Alexandria to Constantinople 4% in grain and one solidus per thousand modii.

κωμμόδιον. This is found once (BGU. 21) and is evidently the earliest example of providing gifts for officials in the extant records.

ὄβρυζα. See p. 312.

παραμυθία. This seems to be used as salary or wage in the accounts of Apion (P. O. 1912-3, 2024, 2038, 2195). It is also applied to members of the bureau (C. J. xii. 49. 13), where it apparently is a perquisite of some kind divided up amongst the tabellarii in the proportion of 4: 3: 1. Cf. P. Lond. 1781.

παραπομπικά. Not found in papyri. Originally probably expenses in connection with entertainment of officials. Forbidden by Justinian (Novel 128), where the term seems to be generic for special fees exacted on taxes paid in money or in kind.

προσθήκη. This is a rare supplement (P. Lond. 1686).

ῥοπή. See p. 315.

σπόρτουλα. This Latin term came into use in the sixth century. An edict of the duke in A. D. 547 (P. Cairo 67031) forbade the

members of his bureau to exact more than 2 carats per solidus. The bureau under the duke was presumably concerned with the exaction of the aurum tironicum and the military requisitions whether paid in kind or commuted for money. See also P. Cairo 67032, 67058, 67072. Justinian regulated the amounts of the sportula (C. J. iii. 2. 2-6. The sportula for delivering the edicts was 15 solidi).

σπουδή. This fee is probably for the expedition of the embole. The assessment *ὑπὲρ σποδ( )* in P. Flor. 297 is evidently to be restored as *ὑπὲρ σπουδῆς*.

σταθμός. See p. 316.

φιλικόν. This term is found first in a constitution of Theodosius (C. Th. xiii. 5, 32, A. D. 409) which was repeated by Justinian (C. J. xi. 2. 4). On the failure of the Alexandrian fleet to effect the transportation of grain to Constantinople, the Carpathian fleet and certain other shipowners were persuaded to help out, the regular freight (mercedula) being supplemented by the privilege of immunity from liturgies or from the so-called *φιλικόν* or even other aids which the praetorian prefect might discover. Evidently the special circumstances which prevailed in 409 had repeated themselves, else Justinian would not have incorporated the constitution in his code.

The *φιλικόν* is rare in papyri (P. Flor. 297 Col. iv) but apparently the fee is similar to the *ἰμπετικόν*, the cumuli, the denarius per modius and similar charges.

10. MISCELLANEOUS TAXES

In the Byzantine period the main burden of taxation was the embole and the subsidiary charges. Justinian placed the largitionalia in the second place (Edict xiii). These were the taxes on land paid in money. In addition there was the annona for the army and officials paid either in kind or in money. Certain payments in grain were collected for the euthenia of Alexandria and for pious foundations. In the sixth century the practice of paying the salaries of imperial and local officials in money (*συνήθειαι κτλ.*) was fully developed. These and other levies were collected by an elaborate system of assessments (*μερισμοί*), which were usually paid per capita, but in actual practice the burden fell upon the propertied classes and to some extent on the artisans. Most of these levies have been discussed at length elsewhere (p. 265). There remain certain miscellaneous taxes and fees which will be considered alphabetically.

ἀγγάρεια. This is rarely found. In the Roman period the guilds

seem to have demanded a fee when a member undertook a contract. Thus in A. D. 140 a ship captain records a contract of charter wherein he states the contract price "free of all charges except the fee granted for guild banquets (*καθαρὰς ἀπὸ πάντων ἑωρτικῶν ἐγγαρείων διαπεισμάτων*). Whether this had a continuous history is unknown. However in a contract between the head of a guild of dealers in oil, some one, whose status is not clearly defined, agreed to pay 300 myriads a month for *ἐγγαρίου* (SB. 7668) and a specified sum for customs dues. Apparently the guild was responsible for transport as well as for customs dues on oil. In P. Cairo Pr. 33 the reading *ἀγγαρικῶν τίτλων* should probably be corrected to *ἀργυρικῶν τίτλων* (see SPP. xx. 93).

For the posting service in Egypt see Public and Private Posting Service. In Novel 128 (A. D. 549) Justinian forbade the governor and his staff to oppress the provincials with angary.

ἀγορασία. A tax of half a solidus as *τέλος ὑπὲρ χ´ ἀγορασίας* (W.O. 1225) seems to be a record of a tax on sales, though no explanation of the reading *χ´* is obvious. A universal tax (*τῶν ὠνίων*) was imposed on the whole empire early in the fourth century (PSI. 965),[1] and may be the customs charge of *octava pars* (*q. v.*). The tax on sales imposed by Valentinian on the whole empire was a siliqua per solidus, half of which was paid by the vendor, half by the purchaser (Valentinian, Nov. XV, A. D. 444/5). No evidence for this tax has as yet appeared in Egyptian records. The nature of the fee called *ὄβρυζα* levied by Alexandrian bankers is uncertain. It was abolished by Justinian and was evidently not a tax on sales (Edict xi).

τὸ ἀερικόν. According to Procopius (Anecdota xxi. 2) Justinian exacted thirty centenarii of gold annually for this tax. It is not found in Egypt until the Arab period (P. Lond. 1357) and Bell suggests that it was identical with the extraordinary taxes of the Byzantine period. Preisigke (Hermes LIV, 431) would connect it with a tax on houses.

ἀλαβαρχικά. The alabarch is known only in Egypt. Josephus implies that the office was held by leading Jews of Alexandria in the early empire, but he gives no idea of the duties. However it is generally supposed that the alabarch was in charge of customs

[1] This document is dated by Segré (Byzantion xv (1940-1), 249) about A. D. 300, and because of the reference to 12½ Attic drachma in the text (cf. P. Oslo 83) he believes that the coinage was changed. It should be noted that the latter may be restored *τῶν ἑκατ]όν δὲ νούμμων εἰς δώδεκα ἡμισὺ Ἀττικάς[*. Accepting the *nummus* as the denarius or the Egyptian tetradrachm, equivalent to an Attic drachma, this looks very much like a tax of 12½% or the *octava* of C. J. iv. 61, 7-8 (366-381) which appears to be the customs dues of the period.

(Pauly-Wissowa R.-E. s. v.). This is borne out by a constitution of Valentinian (C. J. iv. 61, 9.) addressed to Palladius, Count of the Sacred Largess, saying that the " vectigal alabarchiae per Aegyptum atque Augustamnicam is to be exacted without excesses, and nothing is to be claimed for animals in transit (super transductione animalium) which however is not permitted without the usual fee." This presumes that the alabarch controlled the caravan trade between Alexandria and the rest of Egypt or Arabia for whose passage a fee was exacted, but any attempt to collect duty on the animals themselves was forbidden. The alabarch was therefore in charge of local customs and presumably of imports and exports from Alexandria at this time. Apparently the vectigal octavarii or 12½% had been established early in the fourth century and remained in effect until Justinian (C. J. iv. 61, 7-8).

In A. D. 436 Theodosius and Valentinian (C. J. xi. 29, 1) instructed the praetorian prefect to take 400 s. from the tax of two nummi for cleaning aqueducts and this was to be replaced ex titulo navium. Since Alexandria was a busy port, it is not necessary to suppose that this was a customs charge, but may have been a tax on ships clearing or entering the port. The Alexandrian fleet engaged in transporting grain for Constantinople was exempt from any charges (C. J. xi. 2, 4, A. D. 409).

Procopius accused Justinian of intolerable exactions on the Hellespont, and possibly, if this story can be believed, Alexandria may have had increased dues, although no change is known in the customs (Anecdota xxv. 1). In Edict xi, Justinian abolished the *ὄβρυζα* of 12½% which seems to have been a private charge developed by local bankers of Alexandria in exchange and served to hamper trade. In Edict XIII the revenue which had come from the export of pottery (*κεράμους*) and similar products went to provide for certain needs of Alexandria, probably the maintenance of the public baths. See also under *τελώνιον* and *ὤνια*. The alabarch had an office at Antinoopolis in A. D. 568 (P. Cairo 67166), and probably the caravan route to the Red Sea was still in use from this city.

This tax was farmed out at least as late as A. D. 383 (C. Th. xii. 1, 97).

ἀμμωνιακή. Once an assessment is recorded at Oxyrhynchus at the rate of one solidus per 16,400 ar. (P.O. 1905). The word seems to mean a kind of rock-salt, and presumably this is a levy to support the mine where it was extracted. The sale of salt was retained as a monopoly by the government and this was presumably universal (C. J. iv. 61, 11).

ἀναβολικόν. See taxes in kind.

ἀναλώματα. Under this heading all sorts of minor charges seem to be grouped from the fourth century onward. It is found probably for the first time in connection with the collection of gold for recruits, and is mentioned with taxes in kind in the sixth century (*supra*). In P.O. 1915 the money tax on 61½ ar. of arable land (of which four ar. were apparently vineland in hay), was 57½ s. From this 60½ c. were deducted as *ἀναλώματα* in accordance with ancient custom. The purpose of the deduction is not stated but probably it was a fee to the collector. In P.O. 1919 a payment of 103 s. (*ὄβρυζα*) and 9¼ c. has a charge for *ἀναλώματα ἐξ ἔθους* of 68¾ c. which is collected in addition to the *ὄβρυζα*, and, when added to it, gives a total of 106 s. 6 c. in the public standard. Here the extra charge seems to be ½ c. (for weighing?) and ⅛ c. per solidus, perhaps for *παραλληλισμός*.

In the Apion accounts the *ἀναλώματα* represent payments, and if these documents are accounts of taxation, the word may be construed as a generic term for taxes of all kinds. This seems to be the use also in the tax accounts of Aphrodito. The word is used as a generic term for court fees (P. Cairo 67032).

ἀννῶνα. For military requisitions in kind see Annona of Army and Officials. There was also a regular tax in gold according to the municipal accounts of Aphrodito (p. 283). This was usually paid in three instalments in the same manner as the canonica. In two cases the payments were made to the actuarius or quartermaster stationed at Antaeopolis (Cairo 67287, 67330), apparently in response to an order (*πρόσταγμα*) issued by him or by the military command. One of these payments was said to be an adaeratio for wine and meat, but in all other cases the purpose is not stated. Usually the canonica was far in excess of the annona and the latter varied from 63-73 s. yearly while the canonica remained fairly uniform at about 402 s. In two cases the situation was reversed and the canonica was much reduced while the annonae were much higher (P. Flor. 297; P. Cairo 67287) and this reversal is probably due to the expedition against the Blemmyes. At the same time the tax register of Antaeopolis (p. 275) recorded unusual expenses for the army (P. Flor. 297; P. Cairo 67056-8, 67287, 67330; P. Lond. 1670, 1758). The disposition of the payment in gold in normal years is unknown, but it probably formed part of the arcaria and was forwarded to Constantinople (P. Cairo 67038-9). The form *ἀννωμι*( ) is found in a register presumably from some village of Aphrodito (P. Lond. 1672). The editors suggest that the restoration *ἀννωνικά* is impossible partly because of the *δημόσια*, but both terms are found together in P. Lond. 1758.

ἀντικάνθαρον. Justinian states in Edict xiii, c. 15-16 that 419 solidi were collected for this tax, apparently from customs dues. He proposes some other source for raising this amount, but the *brevium* is lost. The meaning of the word is unknown. Liddell and Scott suggest some form of transport. Gelzer (Archiv f. Papyrusf. v (1913), 364 thinks it is another charge for baths.

ἀποκαταστατικόν. This term appears once and seems to imply a charge for exchange. See Currency in Roman Egypt, p. 118.

ὑπὲρ ἀπόρων ὀνομάτων. This tax is probably in the nature of an *epibole* of land abandoned by owners although they seem to be differentiated in Kase, Papyrus Roll xiv. Procopius (Anecdota xxiii. 15) claims that owners were ruined by the excessive taxation and that others were forced to bear the burden when they abandoned the properties. For the tax in kind see p. 21. Tax in money: P. Thead. 41 (309), P. Gen. 66-7; 69-70; *ναῦλον ἀπόρων*: P. Cairo 67058.

ἀποχή. The fee for receipts was abolished in A. D. 365 (C. Th. xi. 2. 1). There is no evidence for the tax in papyri.

ἀργυρικοὶ τίτλοι. Payments on this account were sometimes made along with naulage in the fourth century (SPP. xx. 93; P. Cairo Pr. 33) and may represent some payment in that connection.

The payment of 300 T. *ὑπὲρ ἀργυρικῶν καθολικότητος* at Theadelphia (SB. 7536) seems to be an adaeratio for some requisition imposed by the catholicus.

In the fourth century the *δημόσια* were rarely paid in gold and as the so-called silver coinage depreciated, the payments reach into thousands of talents. Thus the tax paid in silver at Theadelphia early in the fourth century by Harpocration seems to be about 50 dr. per ar., if based, as was probably the case, on land (Kase, Papyrus Roll, v), but the payments in Philadelphia at some later date run from 1,000 to 15,200 T. per individual (BGU. 1628. For Hermopolis, see P. Flor. 71).

Payments made in silver during the fourth century need not necessarily be limited to the *δημόσια* on land. If P. Geneva 63-4 belong to the archives of Abinnaeus, praefectus castrorum, the brevia *κατὰ χειρόγραφον* may be military requisitions. Since one or two are evidently commutation of requisitions of oil, etc., all payments in money may have been for military requirements.

The situation in the sixth century is somewhat complex. While taxes were sometimes paid in silver, the totals were usually converted into gold, which was the usual medium of exchange in official accounting practice. The *ἀργυρικοὶ τίτλοι* are found in the register of Antaeopolis (Cairo 67057), but entered in gold and an additional

charge of one carat per solidus added for *ὄβρυζα*. (See below *s. v.*). Similarly a document from Oxyrhynchus (?) classifies the receipts as *ἀργυρικά* and *χρυσικά* although all were recorded as paid in gold (PSI. 80). The latter seem to be the *δημόσια* or *κανονικά* as they could be paid in instalments and were apparently all paid on the private standard (amounts between 16-24 c. are entered as one solidus of so many carats. This was for convenience in estimating the collectors' fee). The *ἀργυρικά* were not paid in instalments and two entries of 44¼ c. and 34 c. may imply that the usual fee for collection was not deducted. Possibly an explanation of these different types may be found in P.O. 126, where Stephanous paid 22 c. to the *κανονικά* and 22½ c. to the arcarius or embolator yearly, both payments being equivalent to a solidus (Currency, 140ff.). However, two other receipts *ὑπὲρ ἀργυρικῶν* show that these taxes were collected on the private standard and that a fee for weighing (*ῥοπή*) was deducted in addition (P.O. 143; P. Lond. 780). In this case *ἀργυρικά* may be a generic word for taxes and has no special significance, but in other cases there is a real distinction, for which there is insufficient evidence to determine its nature.

ἀρκαρικά. The *arca* is a generic word for any treasury and this word or its adjectival derivatives could properly be applied to any of the imperial treasuries. However in the legal practice of the Byzantine empire the *arca* seems to be limited primarily to the treasury controlled by the praetorian prefect (see Pauly-Wissowa, R.-E. *s. v. arca* and *arcaria*).

The information about the *ἀρκαρικά* in papyri is limited. In P. Flor. 377 the estate of Olybrius seems to have been involved in litigation concerning taxes. When the decision of the court was rendered, various disputed claims were settled. The unsatisfactory character of the papyrus does not make clear whether the arcarica were commuted for money nor whether the payments in kind to the dux, princeps and various bureaus were considered as part of the *arcarica*. Similarly at Oxyrhynchus certain payments of grain to the arcaria were commuted for money (P.O. 2020), but this part of the account is fragmentary. In the remainder of the account the collections of barley were presumably not for the embole but may have supplied some form of transport service, either for the army or the public post. Large contributions by the " divine house," presumably the imperial estates, may imply that their income went entirely to this department (C. Th. x. 1, 11). In the case where Stephanous transfers her dowry from the account of her father to herself in a different tax district she promises to pay 22 c. in the public standard

to the canonica and 22½ c. to the arcaricarius or the embolator (P.O. 126). The latter amount was ὄβρυζα which was 24 c. in the public standard. If the embolator and arcaricarius are identical, it would seem that the arca was distinct from the bureau of the canonica. For a similar division of money payments, half to the *arca* and half to the largess (see C. Th. xi. 20. 6).

In Edict xiii the collection of the embole, naulage, and the *alimonia* of Alexandria was entrusted directly to the Augustalis and his bureaus (cc. 4-8). The praetorian prefect through the scrinarii and tracteutae was responsible for the δημόσιοι φόροι, though the civil officials were required to cooperate. The largitionalia were described as δημόσιαι εἰσφοραί and the responsibility for collection was apparently vested in the Augustalis and his staff (c. 11). In Libya the largitionalia were placed under the authority of the duke and the civil governor, but the same regulations about exemptions and privileges were to be applied to them as stated above in reference to the collection of the arcarica (c. 20). The arcarica were not mentioned by name but since the exemptions and privileges were enumerated in detail with the taxes under the direct control of the prefect, the δημόσιοι φόροι (c. 9) would seem to belong to the department of the arcarica. One would infer that the prefect controlled the taxes in money and kind for the army, but according to Edict xiii the στρατιωτικόν in Egypt was under the Augustalis and his bureaus (c. 13) though some responsibility lay with the scrinarius of the prefect.

The coloni of imperial estates paid a fee of one percent to the arcaria (C. Th. x. 1, 11, A. D. 367) but no evidence of this levy has yet been found in the papyri from Egypt.

ἀρχοντικά (P. Cairo 67289) is probably a fee for the entertainment of officials.

ἀστικά. This is probably a generic term to distinguish taxes paid by or for a municipality and those collected for the account of a village (P. Lond. 1686; P. Cairo 67045-6, 67060, 67347).

Little is known of municipal revenues during the Byzantine period. The register of Hermopolis indicates a small area of γῆ πολιτική which probably belonged to Alexandria. There is no evidence of a municipal territorium, but a very small area is described as οὐσία Ἑρμ. If we may judge from Edict xiii, Alexandria had no income except such moneys as were allowed by the Emperor and annual contributions from the curiales for the races. Public baths collected a small fee. John the Almoner (c. 38) gives five folles as sufficient, but the fee probably did not pay the cost of upkeep. The public

shops (C. Th. xv. 1, 9, A. D. 362; P. Goth. 9) may be imperial (quae ad ius civitatis pertinent) rather than municipal.

Aurum tironicum. Possibly two forms of this levy should be distinguished. When recruits were still levied in Egypt, they received a certain sum of money from the district responsible for providing the recruits. Whether this was a fixed sum or a matter of agreement between the recruiting officer and the recruit is a matter of dispute (P.O. 1103; Wilcken, Chr. 465). At Oxyrhynchus a gratuity (*διάπεισμα*) was paid in addition. A document from the Hermopolite nome indicates that 30 solidi were levied on a village for a recruit and when Papnouthis volunteered he received the money. This sum was said to be paid from the imperial treasury (*τοῦ ταμιακοῦ λόγου*), but was probably the amount just levied for the purpose (Wilcken, Chr. 466). The sum raised for local recruits thus seems to be a matter of contract or else it was fixed at 30 solidi. Whether the gold collected at Theadelphia in A.D. 312 was for this purpose seems questionable (P. Thead. 33; Boak, Journal of Juristic Papyrology, i [1946], 7).

When Valens admitted the Goths into Thrace, Socrates says that local recruiting within the empire ceased and that the emperor levied a tax of 80 solidi for the purchase of a mercenary soldier (Hist. Eccl. iv. 34). This amount is the tax called the aurum tironicum, of which we have two examples in Egypt (P. Leipz. 62, cf. *ibid.* 61; P. Flor. 95). This tax was assessed on land at Oxyrhynchus (P.O. 1905) at the rate of a solidus for 83 arouras.

Socrates is evidently in error when he states that local recruiting stopped. At any rate a detachment of new recruits was sent from the Thebaid to Antioch after Egypt was created a diocese (Wilcken, Chr. 469, ca. A. D. 382). The nomination to the liturgy of *στρατολογία*, presumably a recruiting officer (P. Leipz. 54), belongs to the reign of Valens but whether prior to the institution of the aurum tironicum is impossible to say.

In the sixth century military service in Egypt was probably hereditary, and the enrolment of the new recruit was a formal ceremony (Wilcken, Chr. 470). On the subject of the army, see Segré, Byzantion xvi (1943), 393ff.

βαλανικόν. According to Edict xiii the vindex provided 492 s. for the public baths of Alexandria. This amount came from customs dues on pottery and the like but Justinian proposed some other source (c. 15-16). Contributions for public baths were sometimes made by estates but this was probably voluntary (P.O. 2040).

βόες, βούρδονες. See Military Requisitions.

βοήθεια, βοηθός. See *μερισμοί* and *συνήθειαι.*

βότων θείων. In P. Cairo 67057 the sum of 20 s. was appropriated for this purpose. In C. J. xii. 48. 1, a pound of gold is specified for the vota at the beginning of the year.

γρι. See *μερισμοί.*

δαπάνη. In P.O. 2041 (6/7) 40 *χαράγματα* are equated with 36 c. *σὺν δαπάνη.* If the *χαράγματα* are bronze issues there would presumably be some exchange for gold; perhaps each *χάραγμα* represents a carat, and four of the forty were taken for exchange. This charge was known in the Arab period (P. Cairo 67329; P. Lond. 1421, 1480b). Possibly the payments of the *διαγραφή* in certain quarters of Arsinoe *σύν δ'* should be restored *συν δ(απάνῃ)* (Kl. Form. 675, 682, 719, 730-1, 747).

delegatio. See *διατύπωσις.*

δευτέριος, πρώτιος. Two assessments made in SB. 7756, A. D. 359. These terms may apply to the first and second assessment. Later the *κανονικά* were paid in three instalments.

δημόσια. In Edict xiii, the *δημόσιοι φόροι* went to the bank of the praetorian prefect, paid in specie or in kind. The *δημόσιαι εἰσφοραί* went to the largitionalia. The latter seem to be the tax on land at Antaeopolis (p. 275), but the nature of the former is not clearly defined. In general *δημόσια* refers to taxes of any kind.

διαγραφαί. According to Procopius (Anecdota, xxiii. 17) these were assessments of various kinds imposed upon land owners (P. Lond. 1686). The text of the passage is not wholly free from suspicion but apparently the assessments were made on the urban as well as the rural population, and the latter paid in proportion to the *φοραί* imposed upon them. See Assessments. For the poll-tax see p. 259.

τὸ δηνάριον τοῦ μοδίου. Collected as an extra charge in wheat payments. See p. 158.

διαμισθωτικόν. Apparently a fee exacted on the periodic leasing of lands on imperial estates (BGU. 933).

διανομή. A variant for *μερισμός* (see Assessments).

διαστολή. The phrase *χωρὶς διαστολῶν* is sometimes found in the collections of the aurum tironicum. Kiessling has given it as a tax in the Wörterbuch, but probably the phrase merely implies that the tax was paid without protest.

διάταγμα. This presumably differs little from delegatio. Three solidi were entered for this charge in P. Cairo 67057. See also PSI. 891 and Fees and Perquisites, p. 289.

διατύπωσις. The Latin equivalent is *delegatio.* The term is probably to be restored in Kase, Papyrus Roll (iii, v), and the taxes paid

on this account amount to about two talents yearly while payments *ὑπὲρ ἀργυρικῶν* seem to average about 500 dr. per year. However these taxes were not paid every year, or else they were entered in a different roll.

In the sixth century the presentation of the schedule of taxes in a pagarchy seems to have required a donation from the local treasury. See *διάταγμα* and *χειρόγραφον*.

διάφοροι τίτλοι. This seems to be the equivalent of *ἀναλώματα* including small miscellaneous fees. In P. Leipz. 97 *διάφορον* appears to be a charge exacted in the collection of grain.

dinummi. This is a tax exacted at Alexandria (C. J. xi. 29. 1). It seems to bear some relation to the tax of two denarii once imposed on Jews but which disappears from the records after the reign of Hadrian. The absence of record proves nothing, nor yet does the reputed letter of 'Amr to the Caliph that there were 40,000 tributary Jews in Alexandria prove that the Jews were subject to a special tax (Butler, Conquest of Egypt, p. 368).

διῶρυξ. Cleaning the canal of Alexandria probably meant the canal supplying water to the city (C. J. xi. 29, 1). Until A. D. 436 this was a tax upon the *corporati* of Alexandria. A similar tax is probably found in P. Hamb. 56 where it is also collected from guilds.

δωρεὰ θεία. The sum of 48 s. seems to be levied in A. D. 579 on this account (P.O. 2002), of which a fourth was paid in two instalments by the heirs of an estate. The editors suggest that this is analogous to the aurum coronarium. See *στεφανικόν*.

εἴδη. Taxes were collected in kind and adaeratio was common. Whether the collector exacted a fee is unknown. However in the tax register of Antaeopolis (Cairo 67057) the *μικρὰ εἴδη* have an additional charge for *ὄβρυζα* which places them in a special category. See *ὄβρυζα* and for the *ἀννωνικὰ εἴδη* see p. 218.

εἰκοστή, ἑκατοστή. For these percentages see Supplementary Taxes. A tax of 1% seems to be exacted as a penalty on military requisitions (BGU. 620).

ἐκστραορδινάρια. The extraordinary taxes were apparently assessments levied from time to time. Aphrodito paid fees for officials at irregular intervals (p. 292). See Cairo 67054 (*γνῶσις τῶν ἐξτραορδιναρίων καὶ ἑτέρων συνηθειῶν*); P. Flor. 297.

ἐμφανιστικά. Court fees (Cairo 67032, 67089).

ἐνδοματικά. This fee was abolished by Anastasius in A. D. 496 (C. J. x. 19, 9), but evidently was revived again. In Edict xiii Justinian abolished the fees received by the collector of the *ναῦλον*. However, later documents show that naulage was collected in the

private standard at Oxyrhynchus and the implication is that fees were still deducted.

ἐξαργυρισμός. This is probably the correct reading in P. Amh. 140 where ἐξαρ[τ.....] is read. The adaeratio of taxes in kind was universal (P. Flor. 95; Preisigke W. B. *s. v.*).

ἐπιβολαί. According to Procopius these were an invention of Justinian. However, they go far back into the history of the empire, where the practice was to regulate by compulsion the cultivation of marginal lands when the latter were abandoned by tenants or owners. In the fourth century a few leases still carry the stipulation that the land is free from any obligation to cultivate other property. In the sixth century the farmers of hamlets on the estate of Apion seem to be grouped in a κοινόν and apparently they paid the taxes and assessments of any defaulting member (see Estates).

ἐπικεφάλαιον. See Capitation Taxes.

ἐπιμερισμός. See Assessments.

ἐπινέμησις. This is the usual Greek form of the Latin *indictio*. Once it seems to be used to describe a superindictio. A second indiction in kind was exacted in P.O. 1660. The emperor Theodosius is said to have levied an extraordinary tax over the whole empire (John Nikiu, 83. 45). The superindiction was probably not common. The constitution promulgated in A. D. 382 is repeated without further additions in the Justinian Code (C. J. x. 18, 1 = C. Th. xi. 6, 1). In P.O. 2037 the ἐπινέμησις seems to be such an exaction on an estate:

Arable land	123¾ c.	Each	tenant	paid	12½ c.
Date palms, etc.	189½ c.	"	"	"	19 c.
Yeast (ζύμη)	123¾ c.	"	"	"	16½ c.
Dove cotes	96 c.	"	"	"	24 c.

No extra tax was levied in this document on payments in wheat. The ἐπινέμησις seems to be levied on the estate and the amount was apparently divided up amongst the tenants.

ἐποψία. Since the imperial laws required that an overseer (*epoptes*) be sent to examine the situation when a rebate in taxes was demanded (C. J. x. 16. 13) Gelzer suggested that the charge for this account in Cairo 67057 should be considered as a fee to this official (Archiv, v [1913] 346ff.). However the sum seems too large for an official fee; and if the rebate was a fourth, it would be half the amount. In view of the fact that Antaeopolis was paying large sums for military purposes, probably for the attack on the Blemmyes, the ἐποψία may be for a special local guard.

ἐρέα. In the register of Antaeopolis, Maspero suggests that ἐρέας should be read as ἐλαίας. In favor of interpreting it as a tax on wool, is the fact that this region seems to have been good for grazing. At least Dioscurus at Aphrodito had large interests in flocks. A payment in P. Bremer 83 ὑπὲρ παροχῶν δοθεισῶν τοῖς ἐριοκάρταις, if a tax on wool, was probably an adaeratio on the weaving guild. The rental of an imperial flock (?) was paid in 30 minae of wool, Wilcken, Chr. 178. Cf. O. Mich. 255; P. Thead. 37 (25 fleeces paid for 15th year).

ἐσθής (vestis). See Annona of Army.

ἑταιρικόν. The public prostitute is mentioned in BGU. 1024 (πόρνη δημοσία) but whether at Alexandria or Hermopolis is uncertain. It is probable that δημοσία does not imply municipal ownership. Cf. πολιτική (P.O. 903). The tax on prostitutes was paid into the largitionalia and was abolished by Leo (C. J. xi. 41. 7, A. D. 457-467). Evagrius, however, gives the credit to Anastasius (Hist. Eccl. iii. 39ff.). The fee of a prostitute is given as one solidus (Life of St. Antony, p. 186, Budge).

ζημία. The Codes of Theodosius and Justinian provide penalties for improper exactions of officials without end. The persea tree could not be cut down (C. J. xi. 78. 1) as its roots protected the walls of canals. Fines are rare in the papyri but in SPP. x. 186 a payment was made on this account. A penalty was exacted apparently for delay in filling military requisitions of clothing (BGU. 620). Soldiers were often despatched for collection of arrears (C. J. i. 37, 1, A. D. 386) and apparently the villagers preferred to pay up rather than endure billeting of troops (cf. P. Princeton 137; BGU. 836; P. Lond. 234; διαζήμιον of one solidus for a garment imposed in a street of Arsinoe (Kl. Form. 699). See also ὑπερχρονία and τόκος. The fine for cutting down the persea tree was a pound of gold (PSI. 285). For penalties in payments of wheat see P.O. 2023, and Taxes in Kind, p. 248.

ζυγοστάτης. This official, appointed in every city as a weigher of money, probably supported himself by his fees for weighing (ῥοπή). At Alexandria there was the liturgy of zygostasia, probably here connected with the weighing of corn (C. J. xi. 28. 1).

ζύμη. The only evidence for this tax is in P.O. 2037 where the assessment appears to be 5 s. $3\frac{3}{4}$ c. and one tenant only on the estate paid $16\frac{1}{2}$ c. on this account. The tax on yeast seems curious. Whether it has any connection with the beer-tax of Roman times is unknown. In the Byzantine period beer is only mentioned once, in a dole to Dalmatian troops (P.O. 1513), but the guild of beer sellers was active at Oxyrhynchus in A. D. 338 (P.O. 85).

ζῶα. The maintenance of animals for transport of grain, for the public port, and for military and other needs is discussed under Transportation.

ἰατρικά. The maintenance of public doctors seems to be an imperial charge. In the Antaeopolis register, the sum of 25 s. was set aside for the physician of the municipality in the *ἀννωνικά*, and perhaps the municipal physician was loaned temporarily to the army (P. Cairo 67057). In A. D. 570 the salary of a municipal physician is given as 50 s. (P. Cairo 67151).

ἰμπετικόν. The sole example of this tax is found at Antaeopolis where it is listed along with the *ναῦλον*. Possibly a local variant of the *συνήθεια* or *ἐνδοματικά* abolished in Edict xiii.

incrementum. This seems to be the proper restoration for *ἰγκριμ* ( ) in P.O. 1908, where alone this tax is found. It resembles the fee called *παραλληλισμός* in adding an eighth of a carat per solidus. In one example it was collected on taxes paid in the private standard *ἐκτὸς ῥοπῆς* (Verso, line 20). In line 23 the clerk seems to have made an error in reading *ριδ* as *ρπδ* and entered the charge for incrementum as 23 c. In this case the charge is calculated on solidi described as of public standard. See *παραλληλισμός*. The obryzae incrementum of C. Th. xii. 13, 4 (A. D. 379) does not apply to Egypt.

κάθαρσις. A payment of 2 lbs. 3 oz. 17 gr. of silver is once found (P.O. 1653, A. D. 305) with an addition of 1½ oz. for "refining." The *προσδιαγραφόμενα* disappeared after Diocletian but the charge for refining is approximately a sixteenth of the principal sum. In SPP. xx. 246 a cargo of wheat of 2100 art. has an addition of 336 artabas *εἰς κάθαρσιν ποιοῦσαι κοσκινευομένου σίτου* making a total of 2436 artabas. This seems to be an extra charge of 16%.

καλαμία. In SPP. xx. 147 it is not clear whether the bundles of reeds constitute a tax or rental.

καλανδικά. Strictly speaking these were gifts at the New Year, but gradually became prerogatives of officials. Thus in Edict xiii Justinian left this privilege of the Augustalis undisturbed. They are recognized as a tax at Aphrodito (Cairo 67058); but officials on estates received them as perquisites from their superiors (P.O. 1869, 1875).

καμήλων φόρος. This seems to be a tax in P.O. 2037. Public camels were probably used for transport.

κανονικά. Presumably any official in charge of one of the imperial taxing bureaus was empowered to issue a canon or schedule of taxes under the emperor's sanction. Strictly the *κανονικοὶ φόροι* include the

embole for Constantinople and the largitionalia. In the register of Antaeopolis the taxes in money are classified under four headings: annonica, canonica, *συνήθειαι*, and for the pagarchy. However the classification under canonica of various items might be questioned, especially those paid with the extra charge for *ὄβρυζα*, which is not made on the largitionalia or some other items. It is probable that those taxes on which this extra charge was made belonged to some special department.

κατασυνήθεια. See *συνήθεια*. Paid to the rowers of the governor's galley. P. Cairo 67136.

κούμουλοι (= cumuli). See *συνήθεια*.

κριθολογία. In supplying Alexandria with grain the crithologia was a liturgy which the senators of the city had sometimes held to their profit. For this reason they were forbidden in future to hold the liturgy (C. J. xi. 28, 1, A. D. 412), and the emperors confirmed the dispositions of the praetorian prefect regarding the valuation of the grain, and the arrangements made for the liturgy thereafter. Whether a fee in money or in kind was exacted is uncertain. Since the alimonia provided for the city was wheat, the crithologia was probably a liturgy of inspecting the cargoes to determine the amount of impurities such as barley, etc. which might lead to condemnation of the cargo or a fine for the shipper. See also Taxes in Kind.

κωμητικά. See *ἀστικά*. Those taxes which went into the village treasury direct, whence they were paid by the village to the central government. Possibly limited to villages with autopragia.

κωμμόδιον. This is evidently derived from the Latin *commodus* but whether from the adjective or from the imperial name may be questioned. One thinks of caracallium, an article of clothing evidently given currency by Caracalla's affectation of it. However it is probable that it is an early form of gratuity which is found only in the early half of the fourth century (BGU. 21), later replaced in Greek by *φιλικόν* or *συνήθεια* (p. 295).

λαργιτιονάλια. These are rarely mentioned by name. In the Antaeopolis register, this is the largest group under the heading of canonica, and presumably represents the *δημόσια* or gold-tax on land. See p. 275. In P. Flor. 377 the largitionalia seem to be distinguished from the *χρυσικά* and annonae. See Edict xiii.

λειτουργία. The liturgy was in essence a form of taxation and seems to be used in this sense in a few documents of the later period. See P. Lond. 1661.

λίνον. See *ἀναβολικά* and *ὀθονιακόν*. A tax at rate of 14 bundles per ar. P. Princeton 136.

λι ( ). The neatherds (*βοεικοί*) paid a certain sum *εἰς λόγον τῶν* λι( ). Possibly an adaeratio for a certain number of pounds of meat which the guild was required to furnish (P.O. 1777).

λογιστεία. Apparently arrears of taxes paid by a church (P.O 1147).

μειζονία. The office of headman in the village community may have been liturgical or he may have received a salary. In P.O. 1147 a payment of 36 s. 6 c. was made on this account, possibly to make up for some defaulter in his duty. A payment of 50 artabas of wheat in P.O. 2021 to the *μειζότερος* is also in the nature of a fee.

μερισμοί. See Assessments.

μέταλλα. Criminals were condemned to the mines, but the requisition of labor on Egyptian villages was not unusual (p. 331) and at Hermopolis requisitions in money were also made (P. Amh. 140). See *ἀμμωνιακή*.

μεταφορά. A charge for transfer of grain. In the early fourth century it is found in shipments of the annona and apparently is the charge for the transfer of grain from the river boats to the Alexandrian fleet. At Oxyrhynchus it appears to be a charge for local transport (P.O. 1911, 2018, 2022, 2032).

μονοπώλια. Strabo mentioned monopolies as one of the sources of imperial revenue but did not specify their nature. Aurelian is said to have added taxes in kind on glass, paper and linen, but the extent to which these became government monopolies is uncertain (see Trade). In the Byzantine period the natron appears to be under some form of government supervision (*τῶν ταμειακῶν νίτρων*, P. Lond. 231), but there seems to have been private trade as well. The salt monopoly is mentioned in a constitution of Arcadius and Honorius (C. J. iv. 61, 11) and probably extended to Egypt. The salt tax never appears in the Byzantine documents but the lack of evidence is not proof that it did not exist. For the alum monopoly see P.O. 1429 (A.D. 300); for dye-shops (*βάμματα*), P. Mich. 160.

Private monopolies were forbidden (C. J. iv. 59, 1, 2). It is of interest to note that the subject of monopolies and certain vectigalia are treated in the fourth book of the Justinian Code instead of in Books x-xi where we should expect them. Presumably they were placed there because they were leased by the state and so partook of the nature of *locatio conductio* and similar consensual contracts.

According to Procopius (Anecdota xxvi. 36 ff.), Hephaestus brought all the shops of Alexandria under a monopoly and thus gave a greatly increased income to the Emperor.

ναύβιον. See Irrigation.

ναῦλον. See Transportation.

ναυταὶ Ἰνδίας. This seems to be a special assessment for it only occurs once (SB. 7756). Evidently designed to provide marines on Red Sea boats engaged in trade with India.

τέλος τῶν νεκρῶν (SB. 7695). This phrase in a private letter probably means that the taxes of the deceased had been paid, although the plural form (*νεκρῶν*) is difficult to explain. It may be due to illiteracy. There is no evidence for a tax on burials.

νίτρον. For the monopoly of natron see *μονοπώλια*.

ὀβολόν. This tax, apparently a perquisite of Nile captains, does not occur after A. D. 296 (P. Thead. 26). In the later period it may be the equivalent of the fee of a denarius per modius exacted on some shipments of grain. See p. 158.

ὄβρυζα. The Latin word *obrussa* seems to be used to denote a quality of purity in bar gold or coin. It may have been used to describe a charge for refining gold and in the later period it seems to be a fee in the collection of certain taxes. In the fourth century the collection of the aurum tironicum at Hermopolis is once paid without extra charges (*ἄνευ σταθμοῦ καὶ ὀβρύζης καὶ ἀναλώματος* P. Leipz. 61, A. D. 375), but ten years later these charges were included (P. Leipz. 62; P. Flor. 95).

In the sixth century there were different charges on this account which are not fully understood. At Alexandria Justinian (Edict xi) abolished a fee evidently exacted by bankers as a private charge amounting to $12\frac{1}{2}\%$.

At Antaeopolis certain taxes under the department of the canonica carried a fee of one carat per solidus which was listed beside the main tax but included in the total of the collections (P. Cairo 67057, see Taxation of Sixth Century). The same tax register contains an entry of 50 s. for *ὀβ[ρυσ]εικά*. This restoration is difficult to explain. The amount bears no relation to any other tax and seems like a fee of some kind, but no other example is known.

At Oxyrhynchus the difference between gold in the *ὄβρυζα* standard and the Alexandrian standard is $1\frac{1}{2}$ c. per s. Thus in P.O. 1907 692 s. *ὀβρ.* are equivalent to $735\frac{1}{4}$ s. Alexandrian standard. Presumably in the adaeratio of the tribute in kind an extra charge of $1\frac{1}{2}$ c. per solidus was exacted. Similarly in P.O. 144 the extra payment of 45 solidi may represent the same charge exacted for the 720 solidi contributed (Currency in Roman Egypt, p. 118).

The equation of gold solidi *ὀβρ.* to solidi in the public standard is somewhat more complex. In P.O. 126, $22\frac{1}{2}$ c. *ὀβρ.* are said to be 24 c. *εἰς δημοσίῳ*. This is paid to the department of the arcarica. If this

payment was made by an estate enjoying the right of autopragia it seems that 1½ c. were deducted on every solidus paid to the department of the arcarica. This would ordinarily be the fee of the collector. Similarly in P.O. 1915 the tenants ask that the fee of 1½ c. per s. be deducted from the solidus instead of being exacted in addition. In P.O. 1919 the sum of 103 s. 9¼ c. ὀβρ. is equivalent to 103 s. 78 c. public standard. The difference of 68¾ c. is called ἀνάλωμα. This seems to be made of a charge of a half carat per solidus, which is the usual fee for weighing, and a sixth of a carat in addition. The restoration of P.O. 2020 is uncertain but there seems to be a still different rate for ὄβρυζα.

ὀθονιακόν. It is likely that the government requisitions of linen by Aurelian continued in force (P. Oslo 88). Bundles of flax were collected as a regular tax (P. Princeton 136) with a supplementary charge of 20%. Weaving was evidently under government supervision (P.O. 1428). The πραγματευτὴς ὀθονιακῶν is found in the sixth century. SB. 5941 (A. D. 409).

Octava pars. This tax of 12½% is treated under *de vectigalibus et commissis* in C. Th. iv. 13 and C. J. iv. 61. This is evidently the customs tax and probably that called alabarchia (q. v.) at Alexandria. It is probably this tax which is mentioned in fragmentary edicts found in papyri (P. Oslo 83; PSI. 965) which probably should be interpreted as a reduction of customs from 25% to 12½%. (But see Segrè, Byzantion xv (1941) 249). The date of these edicts is unknown but the constitutions in the Codes begin with Constantine. According to C. Th. iv. 13, 1 (A. D. 321) the tax was leased to farmers for a term of three years. The tax evidently remained unchanged until the time of Justinian since most of the constitutions were taken into the Justinian Code.

παραλληλισμός. This is first mentioned in the sixth century and is comparatively rare. At Aphrodito the amount of 12 solidi is entered on this account, apparently as a tax for two years paid by the village, but this amount does not seem to bear any relation to the annual tax of the village (P. Cairo 67058). At Oxyrhynchus a payment of 19 solidi 11½ carats on this account was erased (P.O. 1916, line 44).

At Oxyrhynchus two different varieties may be distinguished. In P.O. 1918 (lines 7-8) an addition of an eighth of a carat per solidus amounting to 1490 carats was added to 11,049 solidi σ. ῥ. and 868 solidi ἐ. ῥ., both on the private standard. Here it is called παραλληλισμὸς ζυγῶν. The same addition is made to solidi on the public standard ἑκτὸς ῥοπῆς in P.O. 1916 (lines 10 and 36). This addition

is called *παραλληλισμός* without any further definition. This is evidently identical with the fee or tax called *incrementum* in P.O. 1908 where the same addition of an eighth of a carat per solidus was added apparently to solidi of public and private standard.

The *π. Ἀλεξανδρείας* is named only in P.O. 1908 where one sixth of a carat per solidus added to 531 solidi of public standard converts the latter into the Alexandrian standard. This same addition is found in P.O. 1918 where it is simply described as a fee or charge of a half solidus per pound of gold. Wherever solidi of public standard are equated with those of Alexandrian standard the same addition is made to the former though it is not expressed. Whether this is a tax or on whom it was levied is unknown, possibly a charge made on estates and villages enjoying autopragia (see Currency in Roman Egypt, The So-Called Gold Standards).

παραπομπικά. This seems to be a charge for travel or entertainment exacted by the *συντελεσταί* and prohibited by Novel 128. The exaction is not found in papyri under this name but is probably to be grouped under *συνήθειαι.* The word *παραπομπός* or *καταπομπός* is also used for tax-collector (Chr. 43; P.O. 1414, 1844), and the title implies that the collector also delivered the taxes either to Alexandria or to the provincial chrysones.

παραφυλακή. Kl. Form. 93, 843. Perhaps a payment to avoid serving on police duty, or a tax to provide a local guard. It is not unusual to find land described as under the *παραφυλακή* of such and such village. Evidently the protection of water rights was a constant charge and police protection was also necessary. See P.O. 1853.

πιστίκιον. The assessment of cereals is common but the only example of *πιστίκιον* in the papyri is found in what seems to be a military requisition at Caranis (Boak, Harvard Studies, li, p. 50). For the identification of this cereal with emmer see Naum Jasny, Wheats of Classical Antiquity, 134ff.

πορθμεῖον. The *φόρος πορθμείου* appears to be a source of revenue or taxation on Apion's estate, P.O. 1917, 2195. In the former case the *φόρος* is 7 s.; in the latter 30 art. of wheat and 10 of barley.

πριμίπιλος. The assessment in P.O. 1905 is one solidus per 1660 ar. at Oxyrhynchus in the late fourth or fifth century. Collected in P. Leipz. 87 along with the requisition for mules; in P.O. 2001 with the aurum tironicum.

πρόβατα. The *φόρος προβάτων* in P. Strass. 28 (A. D. 305) is regarded by the editors as a private rental, but *φόρος* is frequently found in the accounts of Apion as a tax collected by the pronoetae. In P. Baden 95, however, *φόρος* is clearly private revenue. In Kl.

Form. 24 *Verso* there is a λόγος προβάτων and after each name is an entry of 5 c.

πρόστιμον. Penalties for non-payment of taxes or other fines (see also ζημία) PSI. 285: P. Cairo 67330; Kl. Form. 343, 393; P. Würz. 15. Interest on a tax or possibly on a loan to pay for the tax is mentioned in P. Lond. 1915-6.

πρόσωπα. This reading is suggested in P. Cairo 67054 for προσωτ which is difficult to restore satisfactorily. It is unlikely that a payment for imperial estates would be entered here or in this fashion. So also the payment in P. Cairo 67057 Col. II which is apparently reimbursement for expenses of imperial portraits made by the local curiales. See also P.O. 66.

προτέλεια. (P.O. 2016, 2026). Apparently payments of taxes made in advance of the usual time. Could it be connected with the Latin word *praedelegatio* or with *protelare*?

ῥοπή. The charge for weighing gold in the fourth century was called σταθμός, and payments were made ἄνευ or μετὰ σταθμοῦ (P. Leipz. 61-2; P. Flor. 95). When gold was paid in bullion or by weight there is no mention of a charge for weighing.

In the sixth century, when accounting was regularly in terms of gold, the officials at Oxyrhynchus use ῥοπή. Taxes were collected sometimes in the private, public or Alexandrian standard (Currency in Roman and Byzantine Egypt, 140ff.). Only where payments were made in the private standard was this charge found and it is not always found there. Sometimes payments in the private standard are said to be ἐκτὸς ῥοπῆς. Apparently when this amount was paid over by the collector to the banker he deducted a fee of half a carat per solidus (P.O. 143, 205; P. Lond. 780), but in P.O. 1918 there is no evidence of such deduction.

When payments in the private standard were made σὺν ῥοπῇ (P.O. 1918), there was half a carat per solidus added, together with a fee of an eighth of a carat per solidus for παραλληλισμὸς collected on payments ἐκτὸς and σὺν ῥοπῇ. Apparently the amounts were collected from the taxpayer and booked separately.

Somewhat different is the charge for ῥοπή in P.O. 1915. Here the farmers at Pempo (on an imperial estate?) petition that their rent (or tax) be fixed at one solidus per ar. without the additional fee for weighing (ῥοπή). In this case the fee was $1\frac{1}{2}$ c. per s. of which the proprietor received $\frac{5}{8}$ c. and the bailiff $\frac{7}{8}$ c. The tenants request that this fee be deducted from the solidus and not added thereto. This charge may be similar to the fee elsewhere called ὄβρυζα.

Direct evidence of a fee for weighing is lacking in other parts of

Egypt, but since the constitution of Julian provided for a weigher in every city, it is probable that the charge was exacted (C. Th. xii. 7, 2, A. D. 363). At Antaeopolis and Aphrodito the goldsmith's standard was evidently equivalent to the private standard at Oxyrhynchus. Although a charge for weighing is not mentioned it may be inferred. Thus we may explain the conversion from the goldsmith's standard to the public standard in P. Flor. 297 where in line 467ff. the total of 12½ s. less 24 c. in the goldsmith's standard is said to be 12½ s. less 54 c. in (public) standard. Here there is a deduction of 30 c. which can be best interpreted as a deduction of 2½ c. per s. on the twelve solidi of the individual items. If so we apparently have the usual deduction of two carats per solidus for the collector and a half carat for weighing. Similarly in the few accounts where we find the unusual entries of one solidus less nine or ten carats (see Currency p. 146), we may with reasonable probability assume that payments were made in the goldsmith's standard of 1 s. less 7½ c. After deducting 2½ c. for fee and weighing, the clerk entered 1 s. less 10 c. (public standard) as in P. Flor. 297 and P. Lond. 1673.

σακκοφορικόν. This charge is found only in two documents of the fourth century (P. Goodspeed 14; P. Flor. 75) and seems to be a charge on shipments of grain to Alexandria.

σίρωμα. This assessment is limited to a single example (SB. 7756) found at Oxyrhynchus in the fourth century.

σταθμός. This is apparently the charge for weighing taxes paid in gold in the latter part of the fourth century. In the sixth century the tax is usually called *ῥοπή q. v.*

στεφανικόν. The crown tax is rarely met in the Byzantine period. A receipt for 32 talents was issued in A.D. 314 (O. Strass. 289) and later in the fourth century the tax was collected every fifth year in gold (P. Lond. 966). According to the imperial constitution of A. D. 384 this payment was voluntary (C. J. x. 76, 1) but whether this constitution applied to Egypt is doubtful.

στρατευσιμός. This is mentioned by name at Syene in A. D. 574 (P. Munich 1) where one solidus was paid on this account. Possibly the tax at Oxyrhynchus which Stephanous paid to the arcaria is identical (P.O. 126). See *ἀρκαρικά* and *στρατιωτόν.*

στρατιωτόν. This tax is mentioned by Justinian in Edict XIII, and is evidently a generic term for the military annona.

στυπτηρία. An assessment of 10,000 dr. per ar. for [ ]*αιας καὶ στυπτηρίας* (P.O. 1905) may be in lieu of requisitions for labor at the mines (P. Amh. 140). The alum monopoly seems to be leased to private interests in P.O. 1429.

συναλλαγή. Whether this is a tax or fee for collection deducted from the tax is uncertain (SB. 7369). The exchange of bronze for gold was fixed at 25 lbs. per solidus (C. Th. xi. 21, 2) but in revising the constitution Justinian placed it at 20 lbs. per solidus (C. J. x. 29, 1). For *συναλλακτός* see P.O. 43.

σὺν δ'. This is found in receipts for the *διαγραφή* in certain streets of Arsinoe but it was not universal. The meaning is not clear but it may be an extra charge. (Kl. Form. 675, 682, 719, 730-1, 747). Cf. *δαπάνη*.

συνωναί. Procopius (Anecdota xxiii. 11ff.) describes the forced requisitions of material for the army as a method of oppression. It is probable that this burden fell more heavily on other provinces than on Egypt where small military forces were maintained (p. 215). Municipal purchases for entertainment at Aphrodito are for honey, eggs, food, wine etc., but the amounts are small (P. Cairo 67058).

ταβ( ). Possibly a fee for the tabellarius P. Flor. 297, cf. P. Goth. 9.

τέλος. This generic term for taxation is universal. See Preisigke W.B. *s. v.*

τελώνιον. The customs tax has been discussed under *ἀλαβαρχικά* and octava pars *q. v.* There was evidently a tariff barrier near or at Oxyrhynchus (P. O. 1872) and wine coming by boat was subject to tax. The agreement with the head of the guild of olive-sellers in some unknown city called for the payment of 250 myriads of denarii yearly for *τελώνιον* and 300 myriads monthly for *ἐγγαρίου* (*ἀγγαρίου*?) (SB. 7668 dated in VI or VII century). The telonarches is mentioned in Kl. Form. 82; cf. 1308. Export dues on tiles (*κέραμοι*) were collected at Alexandria (Edict xiii). John of Ephesus (p. 190 in Smith's translation) says that Justin exacted from all ship captains everywhere a flagon of wine upon each cask. This brought in many talents. The tax was remitted by Tiberius.

τεταρτία. In SPP. x. 186 a payment of 1¼ s. was made *ὑπὲρ τεταρτῶν*. In Kl. Form. 668, 675, 682, etc. *ὑπὲρ τεταρτίας* is found.

τήγανον. The payment of 55½ s. per 10,000 artabas was exacted *ὑπὲρ τοῦ διαγράφου τοῦ τηγάνου*. *τήγανον* means "frying pan," and the meaning in this exaction is unknown (P.O. 137 R). Possibly it is a proper name and some imperial official is meant.

τιμή. The commutation of various taxes in kind to money payments is common especially for military supplies. The Emperor Mauricius is said to have commuted even the annona for Constantinople into money (Taxes in Kind, note 39).

τόκος. Interest exacted for delay in payment (PSI. 67-9).

τύχη βουλευτική. This is said to be a tax in P. Lond. 1015, but may indicate that the land in question belonged to a member of the curia, and hence was liable for senatorial liturgies. See tax of 4 c. per ar. imposed in curial land which had passed into alien hands (C. Th. xii. 4. 1).

ὑπερχρονίας. Penalty apparently for delay in payment of tax (P.O. 997).

φιλικόν. See *συνήθειαι*.

φόρος. The problem in the interpretation of the various *φόροι* is to determine whether they are for private rentals or public taxes. The evidence is conflicting. In P. Baden 95 the various *φόροι* are unquestionably part of the revenue of the estate and are included in the final settlement among the heirs. When we come to the Apion accounts at Oxyrhynchus the question is not so simple. Gelzer held that the pronoetes collected taxes only and that the private accounts were separate. With the publication of more evidence a different interpretation is possible. But no matter what the interpretation of the functions of the pronoetes, there are various *φόροι* (ferry, olive press, bakery, etc.) which may be either rentals or taxes. In P.O. 2037, however, there seems little question that *φόροι* of dove cotes, date palms, and oil press are taxes, where an extraordinary levy (*ἐπινέμησις*) is imposed. Evidently the practice varied. Similarly in P.O. 71 (A. D. 303) the *κανονικοὶ φόροι* are clearly taxes. For a list of *φόροι* see Preisigke WB. *s. v.*

χειρογράφεια, χειρόγραφον. Certain payments *ἀπὸ τῶν χειρογράφων* were found in the archives of Abinnaeus (P. Gen. 63-4). These payments were made according to a brevium, by villages; and wheat, barley and money were levied, although the money payment may have been an adaeratio. In P. Leipz. 90, Fl. Basileus has the title of supervisor of the lading of the *χειρογράφεια* (*ἐπικείμενος τῆς χ .ἐμβολῆς*) and he acknowledges the receipt of 1 s. 22¾ c. for his fee (*ὑπὲρ συνηθείας τῆς χειρογραφείας*). The tenants on an estate at Hermonthis (P. Leipz. 97) in some cases paid wheat or barley along with their rent which was in arrears. The amount paid *ἀπὸ τοῦ χ.* usually equalled the rent. The " contract " is probably equivalent to the *διατύπωσις* or delegatio for the annual tribute. See also P. Grenf. i. 67; P. Lond. 1755-7.

χλωροφαγία. A tax for the provision of green pasturage or fodder, probably for military requirements (P. Lond. 1672). This is probably the restoration for the assessment χλ( ) in P. Flor. 297.

χρυσάργυρον. According to Evagrius (Hist. Eccl. iii. 40) this tax was established by Constantine and exacted every fifth year. Pri-

marily a tax on merchants but since most artisans were the vendors of their own products it was also a tax on trades. Constantine did not inaugurate the tax on trades which was of ancient lineage (Econ. Survey ii. 537), but he may have imposed it every five years. Libanius says that this levy on merchants and artisans was most severe and parents often had to sell their children to pay it (Contra Flor. p. 427). This seems to be a stock charge and Zosimus used almost the same words to describe the taxation of Constantine. In the law codes the tax is known as the collatio lustralis. It was remitted for the Vincennalia (Chron. Pasch. A. D. 325).

The first mention in papyri seems to be P. Leipz. 64 (A. D. 369) where the governor took cognizance of the fact that the collectors (ἐπικριταί) had exacted double from the peasants as well as from the residents of the city at Oasis. Apparently restitution was ordered (the text is lost at this point.) or a penalty of 72 solidi was imposed on some one. The farmers were exempt from the tax (C. Th. xiii. 1, 3 and 10) when selling their own produce. Privileges were granted to soldiers and the clergy (C. Th. xiii. 1, 2 and 11).

Since a tax exacted every five years was liable to be severe for the improvident, the guilds of artisans seem to have made this their special function. The valuable document published by M. Norsa (Annali della Scuola di Pisa vi [1937], 1ff.) reveals a guild, whose members agree to pay 200 myriads a month into the treasury for their trades' tax (χρυσάργυρον πραγματευτικόν). If this sum were paid monthly for five years the individual tax on this particular profession would amount to twelve thousand myriads (A. D. 426 or 441). The value in gold at this time is unknown but the tax was probably not as bad as it sounds (Egyptian Currency p. 157). From this document we may infer that the tax was collected in the fifth, tenth and fifteenth year of the indiction, and probably that the ratio of the gold to the subsidiary coinage was either fixed for the five-year period or else the tax was paid up monthly by the president or treasurer of the guild. There is no evidence here of corporate liability for defaulting members, as seems to be the case in the Roman period, but the prime purpose of the guild seems to be for the payment of the tax and this liability may be implied. A similar payment by a member of the guild of millers or bakers is found in PSI. 884 (A. D. 391) where five units (perhaps carats) were paid by a member as his allotted share (τὸ αἱροῦν μέρος) for the year preceding. The tax is also found in PRG. v. 27, cf. P.O. 1330-1.

The tax is said to have been abolished by Anastasius (Malalas xvi, p. 398, ed. Dind.; Zonaras xiv, 3, 2; Evagrius, Hist. Eccl. iii, 39-41;

Life of St. Sakes of Scythopolis, p. 303 cited in PRG. v. 27), but there is considerable doubt if Egypt benefitted by the law. The description by Evagrius leads to the suspicion that only the tax on prostitutes was abolished (but see C. J. xi. 1). The latter, however, was eliminated by Leo (C. J. xi. 41. 7, A. D. 457-467) and the tax on trades continued into the Arab period though the term *χρυσάργυρον* is no longer found. Fishermen (Kl. Form. 838); tailors paid through their president 12¼ s. (*ibid.* 839); iron and bronze workers 6 s. (*ibid.* 850); fullers 3 s. (*ibid.* 852). The fuscarii paid 3¼ c. through their president (SPP. xx. 186). The guild of shepherds at Aphrodito seems to be assessed a total of 64 s. (P. Lond. 1671), but this may be a tax on flocks. At Arsinoe a tax in gold seems to be assessed by streets or quarters but while this may be a tax on the trades which usually congregate in the same district, the payments were made not by guilds but individually (Kl. Form. 654-841 *passim*; SB. 5127-8). See also P. Lond. 1028; P. Cairo 67142, 67147, 67288; SPP. xx. 158, 186. Payment by undesignated *κοινά* (P. Flor. 297; cf. P. Hamb. 56).

Justinian cites only a single constitution attributed to Anastasius (C. J. xi. 1) under the heading *de tollenda lustralis collatione*. This might support the theory that Anastasius abolished the tax, though permitting the levy for local expenses, but assessments in Egypt by guilds were common in the sixth century (P. Flor. 297; P. Hamb. 56).

χρυσικά. This is probably a generic term for all taxes paid in gold. In some cases, however, *χρυσικά* and *ἀργυρικά* are used in the same document apparently to designate money taxes of different kinds. In the fourth century payments of taxes were sometimes made in gold and silver in the proportion of 10: 1 or 12½: 1 (Currency in Roman Egypt, p. 138).

χρυσοτέλεια. According to Malalas (p. 394, ed. Dind.) Anastasius instituted this tax based on land which was paid by all *συντελεσταί*. Evagrius (Hist. Eccl. iii. 42) says that this tax and the military levy were established to the great hurt of the provinces. Valesius (Suidas, *s. v.* Anastasius) claims that it was a substitute for taxes in kind.

Apparently Anastasius (A. D. 491-518) undertook some thoroughgoing tax reform of which the papyri furnish no direct evidence. The *συντελεσταί* are found at Aphrodito and Oxyrhynchus in the sixth century, and the vindex Potamo at Alexandria is mentioned in Edict xiii. The tax in kind continued to be levied through the sixth century though there is evidence that the *λαργιτιονάλια* were also based on land. There is no example of *χρυσοτέλεια* in the papyri, but if it is a generic term for all taxes in money, this is not surprising.

ὠνή. There was evidently a universal tax ἐπὶ τοῖς ὠνίοις established fairly early in the Byzantine period (PSI. 965). This is presumably the customs tariff which was established at a uniform rate of 12½% (C. Th. iv. 13. 1 and interpretation). This same rate was retained by Justinian. Evidently this was one tax that suffered no change throughout the period (C. J. iv. 61. 4).

The only mention of a tax on sales comes from Valentinian, who exacted a siliqua per solidus, half being paid by the seller and half by the vendor (Novel xv. A. D. 444/5). This tax is a twenty-fourth and was exacted on sales of moveables and immoveables alike. There seems to be no mention of this tax in Egypt, though the sale of a slave through the office of the agoranomus (SB. 8007) may imply a tax.

The charge for obryza in Edict xi of Justinian seems to have been concerned in some way with contracts and trade, but was probably a matter of exchange rather than a tax imposed by Alexandria or by the governor.

11. LITURGIES AND HONORS

The liturgy was a form of taxation whether it involved personal labor, or oversight, or when, in the offices reserved for men of senatorial rank, the duties involved considerable expense.[1] The Digest of Justinian preserves summaries of the treatises of Hermogenianus and Arcadius Charisius[2] but the Codex Justinianus deals more particularly with the various bureaus and this may be taken as an indication that bureaucracy had supplanted the liturgies in large measure.

In the Western Empire the munera for the upper and middle class (the honestiores) were broadly classified as patrimonialia or personalia. The former required the expenditure of money and the gymnasiarchy of Egypt is a good example; the personalia required the personal care of the incumbent in such offices as overseer or inspector. Some munera were called mixed because in special circumstances the incumbent might be called upon to contribute money, as in the case of the decaproti who had oversight of the collection of

[1] The treatment of Oertel, Die Liturgie, is comprehensive and included all known material published before 1917. Since that time the new material provided by Volume xvi of the Oxyrhynchus papyri and Volume v of the British Museum together with the third volume of the Florence and Cairo papyri have added more information about the sixth century. We here summarize briefly Oertel's material for the fourth century and supplement it with more details of the later period. A fuller study of the whole period is necessary, and the distinction between liturgist and bureaucrat is not often easy to make.

[2] Dig. L. 4. 1 and 18.

taxes and in case of deficiency might be called upon to make up the deficit. The legal writers have little to say about the munera which fell on the lower classes (humiliores), the munera sordida. Of these the corvée or forced labor in dykes and canals and the cultivation of crown land were the most important in the Nile Valley.

The general rules laid down in the Digest did not prevail over local custom. Thus the liturgies of Egypt developed along special lines according to the peculiar requirements of the country. In general many of the municipal and village customs continued with minor changes from the Roman period into the fourth century. From the middle of the fourth century until the age of Justinian the evidence is very slight and what happened in this period is unknown, but in the sixth century the imperial bureaucracy had absorbed many of the former liturgies. The pagarchy overshadowed the polis while the village organization survived with few changes, and seems to be more important as a political unit than the city.

A fragmentary document classifies public services as *βουλευτικαὶ λειτουργίαι* and *δημοτικαὶ ὑπηρεσίαι*.[3] The former were undoubtedly imposed on members of the local curiae and perhaps corresponded to the honores or munera patrimonialia of the western world. The others may include the sordida with the personalia, but the *σωματικαὶ λειτουργίαι* were probably identical with the munera sordida.[4]

The Senate of Oxyrhynchus was a vigorous and active body at the close of the third and beginning of the fourth century but the local magistracies were costly, and evidently it was difficult to secure candidates. The gymnasiarchy, for example, was held for part of a day, probably another way of saying that cost of the games was shared by a college, and each member took a certain share.[5] With the growth of Christianity the pagan games and exercises of the gymnasium became unpopular and the office disappeared. This is true, however, of all the offices. The archon, exegete, cosmete, agoranomus, eutheniarch and prytanis are not found after the fourth century.[6] The archon is last found at Panopolis in A. D. 371.[7] The prytanis was the chief officer at Oxyrhynchus but he is apparently not found after A. D. 370.[8] The proedros succeeded him at Hermopolis while at Oxyrhynchus the college of *οἱ προπολιτευόμενοι* seems

[3] SB. 7261. In PSI. 684 (Hermopolis) the *βουλευτικὸν φρόντισμα* refers to senatorial liturgies.

[4] PSI. 685.

[5] Oertel, op. cit. 316.

[6] Oertel, op. cit. *s. vv.*

[7] P. Leipz. 46. In the sixth century *ἄρχων* is applied to the provincial governor.

[8] P.O. 2110. This document gives the procedure in appointing senatorial liturgies.

to have taken his place.[9] The title βουλευτής continued through the fourth century but in the sixth century references to the βουλευταί are limited.[10] The term πολιτευόμενος came into use in the fourth century and gradually won favor in most cities. Anastasius created the συντελεσταί who seem to have taken over the responsibilities of the curiales in respect to taxes and probably weakened the local curiae.[11] In Edict xiii and the Novellae the word βουλευτής is not found.

The logistes first appears in the reign of Diocletian.[12] Although he is once called curator civitatis he is not identical with the curator rei publicae of earlier times.[13] There is some question whether he should be included as a liturgical officer or bureaucratic official. Once expressly designated as λογιστὴς τοῦ νόμου and at Oxyrhynchus usually called λ. Ὀξυρυγχίτου (νόμου) he seems to be an official of the nome.[14] To him the villages of the nome make reports of their expenses. This indicates that he had wider scope than the municipality itself.[15] Certain liturgies were reported to him and he ordered payments for municipal works from the public funds. Once this was done on order of the prefect, and evidently the πολιτικὰ χρήματα were imperial not municipal funds.[16] In the sixth century the logistes is found as a village official and apparently as an agent on great estates where he seems to rank with the dioecetes in making payments.[17]

In the sixth century the vindex was appointed by Anastasius in charge of the finances of Alexandria.[18] This office was probably bureaucratic and not liturgical. The vindex does not appear in the papyri of the period and presumably the other cities of the Nile Valley were administered differently.

The ἔκδικος seems to have played a minor role in Egyptian cities and he can be with difficulty regarded as a defender of the plebs.[19]

[9] Preisigke W. B. *s. v.*

[10] P. Cairo 67004 (Ombi); S.B. 5175, SPP. xx. 217 (Arsinoe). SB. 4676, SPP. x. 210 (Heracleopolis), CPH. 102 (Hermopolis).

[11] John Malalas xvi. 116; P.O. 2020; P. Cairo 67001, 67105, 67251, 67328, etc.

[12] BGU. 928 (A. D. 288). Heracleopolis; BGU. 21; P. Goodspeed 12; P.O. 895 (A. D. 305).

[13] P. Leipz. 40.

[14] SB. 6212. See Preisigke W. B. *s. v.*

[15] P.O. 895 (A. D. 305).

[16] P.O. 1104 (A. D. 304). The guilds of Oxyrhynchus were required to report to the logistes the quantities of goods on hand. P.O. 85; PSI. 202; P. Rend. Harr. 73. Last examples of logistes as nome official seems to be PSI. 1108 (A. D. 381), P. Goth. 39 (A. D. 416, at Arsinoe).

[17] P.O. 1908. He seems to be an official on an estate sharing with the dioecetes the right to make payments in grain and money. In P.O. 2028 payments at Cynopolis were made by the logistes and the zygostates.

[18] Edict xiii.

[19] P.O. 1883 note.

In the sixth century his role was evidently unimportant and the small amount of money and grain allowed him indicates his relative unimportance.[20] The syndic may have represented more nearly the functions of the defensor plebis but the evidence for his continued existence is slight.[21]

Liturgies of the senatorial class also include the decaproti, phylarch, conductor of the public post, overseer of imperial estates, praepositus pagi, and police duties such as nyctostrategos and irenarch, rearing of horses for races and collection of military requisitions and other supplies (P.O. 2110).

Humbler liturgies of the urban class were assigned by tribes or quarters (ἄμφοδα) of the city. Nominations were made by the συστάτης or γνωστήρ. Some of these liturgies were for public transportation: letter carrier, provision of donkeys for the post, oarsmen for despatch boats, work on canals, temple official at Alexandria, and the like.[22]

The creation of the pagus in A. D. 307-8 established a new organization in the nome. The chief officer was the praepositus pagi. The decaprotus disappeared after this date, and the office of strategus of the nome seems to have been reduced to that of collector of taxes and soon after disappeared.[23] The praepositus seems to have taken over the duty of supervising liturgical appointments from the villages, allotted assessments for various government requisitions, took over from the logistes the supervision of village accounts and actually collected taxes.[24]

The pagus does not occur in records after the fourth century but the pagarchy of the sixth century seems to have become more or less identified with the ancient nome. The pagarch in this period is the chief administrative officer and his chief duty seems to be the collection of the imperial tribute.[25] Presumably the office was no longer liturgical, or if it were, Justinian claimed that the pagarch was guilty

[20] P. Cairo 67058; P.O. 1883.

[21] Oertel, op. cit. 310; TAPA. lxviii (1937), 357; P. Cairo 67281.

[22] Oertel, op. cit. 176.

[23] The last mention of the strategus seems to be A. D. 369 (Chr. i. 43 intro.).

[24] Oertel, op. cit. 301. The praepositus as tax collector, P. Oslo 169 (A. D. 319), P. Cairo Pr. 33 (A. D. 339); SB. 7726 (A. D. 369). His liturgical function is shown in TAPA. lxviii (1937), 357. Cf. P.O. 2110. The comarchy of Pelenius in Harv. Stud. li (1941), 44, is probably an error for pagarchy. Here the praepositus makes the assessments presumably for military purposes. In P. Thead. 16 the praepositus is probably the comarch, as the collegiality of office would indicate.

[25] Collegiality of pagarchs: P.O. 110; P. Lond. 1660 (Patricia acted in this capacity), 1665-7; P. Cairo 67045-7, 67228, 67325. The right of pagarch to increase taxes P. Lond. 1674.

of absorbing much of the tribute which he collected. At Antaeopolis the officials of the pagarchy received an annual subvention of 301 s. from the taxes collected in the district.[26] Many of the payments were too small to provide a living wage and the money payments may have been supplemented by annonae.

The metrocomiae mentioned in the Codes are not recorded in any documents of Egypt. They may have been administrative centers of the pagus, but if so no trace of their existence appears in the papyri.[27]

The village acquired greater importance as a political and economic unit in the Byzantine period. The village officials held office as a public service (*δημοσίαι ὑπηρεσίαι*), and in general the same organization continued through the Byzantine period with slight changes. However, early in the fourth century the villages had certain control of revenues, and their accounts were subject to inspection first by the logistes, later by the praepositus pagi.[28] It is possible that the *ὁριοδεικτία* of Caranis was virtually the territorium of the village.

The principle of collegiality seems to have been generally adopted in the case of the comarchs who were usually two or more in each village.[29] In the fourth century the comarchs were sometimes associated with a tesserarius or quadrarius or ephorus.[30] The functions of these are not clearly defined but the tesserarius was clearly liturgical.[31] The *κοινόν* of the village probably consisted of the various officials and the village elders (*πρεσβύτεροι*). The comogrammateus who was all important in the Roman period is not found in the records of the fourth century though his reappearance in a village of Oxyrhynchus in the sixth century may indicate that the office continued. The usual title in the fourth century is *γραμματεὺς κώμης*.

In the sixth century the liturgical character of village officials is quite unknown. The *μείζων* and *μειζότερος* appear as village officials[32] and in the accounts of Tacona fifty artabas of wheat were set aside from the annual collection for the account of the meizoteros and a

[26] P. Cairo 67057.

[27] C. Th. xi. 24. 6.

[28] P.O. 895 (A. D. 305); BGU. 21 (A. D. 340).

[29] Oertel, op. cit. 153. Three comarchs in P.O. 1835, four in P. Flor 359; cf. P.O. 123 where there seem to be seven.

[30] P. Goodspeed 12; BGU. 21.

[31] P. Goth. 6; P.O. 1425; 1430; P. Thead. 33.

[32] In P.O. 123 the *μείζων* takes precedence over the comarchs as one of their number. See also P.O. 1835.

tax ὑπὲρ μειζονίας may imply that these officials were paid.[33] In a letter of the late fifth or early sixth century the wives of village officials were held in detention for some reason.[34] This letter seems to indicate that the magistrates formed a sort of κοινόν of the protocometae and the order of precedence seems to be meizon, comogrammateus, agrophylax, and the three comarchs. Whether the detention of the wives of these officials indicates that the latter held their office as a liturgy may be questioned. This document is the only record of the comogrammateus in the Byzantine period. The grammateus seems to become more important. He acts as paymaster and apparently has some control over village funds. He also is connected in some way with delivery of grain for the embole.[35] A village logistes is once recorded but his functions are unknown.[36]

The title of πρεσβύτερος in the sixth century is reserved for church officials, and the protocometae, instead, seem to denote the leading men of the village. At Aphrodito, they form with the syntelestae and possessores a κοινότης or governing body.[37] But the protocometes seems in some cases to be an official,[38] in other cases the comarchs and meizon form a κοινὸν τῶν πρωτοκωμητῶν. At Aphrodito Dioscurus styles himself as πρωτοκωμητής, and this official countersigns all orders for payments from the village funds, and once makes up a deficit.[39] The hypodectes and βοηθός connected with the village accounts of Aphrodito were probably salaried or worked on a commission basis.

Minor village liturgies were connected with work on the irrigation system, cultivation of crown land, police duties of various kinds, and the collection of taxes. The liturgical character of most of these functions seems well attested in the early fourth century. Evidence for the later period is very slight.

The decaproti exercised general oversight of the collection of taxes until the pagus was organized in A. D. 307-8.[40] The sitologi also functioned as the village collectors of money as well as of grain.[41]

[33] P.O. 1147 (36 s. 6 c. paid ὑπὲρ μειζονίας) may be to make up deficiency for a liturgy. It seems too high for salary). P.O. 2021.

[34] P.O. 1835.

[35] P.O. 1934, 1997-8. Kl. Form. 1-10, 14, 24, etc.

[36] Kl. Form. 617.

[37] P. Cairo 67001. The syntelestae were instituted by Anastasius to take the place of the curiales in their responsibility for the annona. Their survival at Aphrodito probably indicates that this village lost its municipal status after that time.

[38] The protocometes seems to be the only official at Aphrodito. P. Cairo 67060-1, 67287, etc. The syndics represent the κοινόν in P. Cairo 67281.

[39] See Villages, p. 275.

[40] Jouguet, Vie municipale 388. The decaproti represent the toparchy: P. Thead. 26-7.

[41] P. Thead. 29; Kase, Papyrus Roll; P. Flor. 36 (A. D. 312).

Both of these groups were liturgical in character. The sitologus of Theadelphia was once involved in heavy obligations to the state. The sitologi seem to disappear after A. D. 372.[42]

Little is known of the collection of taxes in the fifth century. In A. D. 487 Aurelius Sambas, who calls himself μεσίτης, perhaps an official in charge of public granaries, wrote to the Count of the Domestici and nominated Aurelius Peter, sitometres, to be the hypodectes of grain for a village in the Fayum, while offering himself as surety for him.[43] This would indicate that the collectors of grain were now members of the imperial bureau and they probably received a percentage of the grain collected as salary. Whether there was a separate hypodectes for grain and for money is uncertain.

In the sixth century the estate of Apion employed an agent called προνοητὴς ἤτοι ὑποδέκτης who collected both grain and money from the tenants.[44] Whether the pronoetes of villages who appears frequently in the accounts from Oxyrhynchus was employed as a private or as an imperial agent is impossible to determine.[45] The private agent on Apion's estate received a salary. Whether he also received a commission on his receipts is unknown. In one case the usual commission of 1½ c. per s. on imperial estates was divided up between the proprietor and the steward.[46] The officials designated as οἱ μεσιτευόμενοι (οἱ μεσῖται) ὁρρίων πολιτικῶν in Fayum villages seem to have the oversight of public granaries. Possibly the κελλαρίτης of Heracleopolis was somewhat similar. The grain from private estates of Oxyrhynchus was delivered to an official called the embolator. His place was taken by the osprigites in the later period.[47] The villages seem to have delivered their tribute to ship captains directly through the secretary.[48] At Aphrodito the annual delegatio in two cases instructed the village to provide an epimeletes, a proedrus and a nautes, presumably to accompany the embole to Alexandria and to be responsible for the safe delivery of the cargo.[49] The measurer of corn received a small commission and his office was presumably not a liturgy.[50]

[42] P. Leipz. 85.

[43] SPP. xx. 128 (A. D. 487).

[44] P.O. 136. Cf. SB. 8029 (A. D. 538), where the appointment of a village collector was made by the singularis of the ducal bureau.

[45] P.O. 1915. See Currency, C. xii.

[46] Kl. Form. 580, 973, 1140-6; cf. SPP. xx. 128. The μεσῖται apparently made local payments of grain on order.

[47] P.O. 2000; 2021, 2023, 2195; Kl. Form. 40 (paid a salary) 473, etc, P.O. 1862.

[48] P.O. 1913, 1914, 1997-8, 2023.

[49] P. Flor. 293; P. Cairo 67030.

[50] See Extra Charges.

The collection of grain for Alexandria seems to be a liturgy imposed upon senators in the fourth century.[51] The liturgy of crithologia and zygostasium at Alexandria seems to have been profitable to Alexandrian senators and was abolished by a constitution of Honorius and Theodosius who transferred the liturgy to bureaucratic officials.[52]

The collection of military supplies was a more or less complicated matter. In A. D. 303 Aurelius Demetrius of Arsinoe was heavily indebted to the fiscus for his oversight of the annona (*ἐπιμέλεια ἀννώνης*).[53] In some cases requisitions were paid for but the record of such cases is rare, and usually the annona was an extra tax upon the producers.[54] In the fourth century the *ἀπαιτηταὶ ἀννώναις* were nominated along with the sitologi. Various officials such as *ἀποδέκται* (*ὑποδέκται*) *ἀπαιτηταί*, *ἐπιμεληταί* and *παραλῆμπται* all seem to be involved in the collection of cereals, oil, wine, meat, and clothing, but the difference in their respective functions is difficult to determine.[55] The *διαδότης* was apparently responsible for the delivery of the materials to the various stations.[56]

In the sixth century the delegatio of military supplies was sent to the village of Aphrodito and presumably the assessment was determined by the village authorities.[57] At Hermopolis the *ἀπαιτητής* continued to gather military supplies.[58] At Antaeopolis the assessment of barley, wheat, and wine-meat was apparently collected along with the regular taxes.[59]

If the Constitution of Valentinian applied to Egypt the susceptor was allowed 2% for commission on collections of wheat, 2½% for barley and 5% for wine and pork.[60] In that case the collection ceased to become a personal liturgy. In A. D. 566 at Antinoopolis the pork dealers and cooks seem to have a liturgical function since sureties were provided for their stay and appearance when required.[61] Pre-

[51] P. Flor. 75 (A. D. 380). The prefect of the annona at Alexandria was probably a local liturgy.

[52] C. Th. xiv. 26. 1 (A. D. 412).

[53] P.O. 71.

[54] Harv. Stud. li (1941), 50. See Procopius, Anecdota, 23, 9.

[55] Oertel, op. cit. *s. v.*; In P.O. 2110 the procedure in appointment is described.

[56] P. Reinach 56. See also P.O. 60; P. Leipz. inv. 362 (Wilcken, Chr. 43).

[57] See Military Requisitions.

[58] P. Baden 95.

[59] P. Cairo 67057.

[60] C. Th. xii. 6. 21 (A. D. 386). Somewhat less was allowed in C. Th. xii. 6. 15 (A. D. 369). Justinian retained the regulation of A. D. 386 (C. J. x. 72. 9), but there is no certainty that this rule was preserved in Egypt. Gratuities were allowed the apaetetae in P. Cairo 67054, 67057; P. Flor. 297.

[61] P. Strassb. 46-50 (A. D. 566).

sumably these were not attached to the army posts but were civilians who were required to supply detachments of troops, or bureaucratic officials passing through. The collection of recruits in the fourth century (στρατολογία) was evidently a liturgy imposed upon members of the senate.[62]

The practor who was collector of money taxes in the Roman period is not found after the third century. The decaproti at Hermopolis, and the sitologi in the Fayum issued receipts for certain payments in money, but these seem to be special assessments, commutation of payments in kind, and transport charges.[63] The functions of the strategus, who is sometimes called exactor, are ill-defined as a collector of revenue, but he may have had general oversight of the nome.[64] The functions of the praepositus pagi are also obscure. He seems to have determined the assessments for each village, and the κοινόν of village magistrates seems to have shared in the responsibility for collection.[65] That these were ruthless is evident from a Christian writer who complained that a certain wine merchant had lost all his property, and his children were held in bondage because of the debts incurred in meeting the exactions of the tax collectors.[66]

When the collection of gold became a regular feature of the tax system is uncertain. In A. D. 384-5 the aurum tironicum and other miscellaneous taxes (one of which at least was based on land) were collected by the hypodectes at Hermopolis.[67] He was assisted by exactores and the riparius. Possibly the exactor collected arrears and when necessary he applied to the riparius for troops to enforce the collection.[68] The hypodectes presumably received a commission on the payments and his office ceased to be a liturgy even though he was bonded. At least in the sixth century the hypodectes is a part of the bureaucratic system. Probably different grades may be discerned. At Oxyrhynchus we find the chrysones and hypodectes combined in the same individual. The same document mentions epimeletae and hypodectae as if there were several of a lesser grade who combined the office of epimeletes and hypodectes.[69] The hypodectes was sometimes called παραπομπός or καταπομπός and appar-

[62] P. Leipz. 54 (ca. A. D. 376).

[63] P. Leipz. 84; Kase, Papyrus Roll; P. Thead. 29.

[64] Oertel, op. cit. 290.

[65] Harv. Stud. li (1941), 45. Collector of taxes see note 24.

[66] P. Lond. 1915-6 (A. D. 330-340). Libanius in describing the evils of the tax on trades makes the same statement. See Miscellaneous Taxes *s. v.* χρυσάργυρον.

[67] P. Leipz. 62; P. Flor. 95. The ἐπιμελητὴς χρυσοῦ appears at Theadelphia in A. D. 311 (P. Thead. 33).

[68] Assessments collected by exactores: P. Leipz. 98; P. Lond. 1911.

[69] P.O. 1919. At Aphrodito the hypodectes was paymaster from the village accounts.

ently part of his duties involved the conveying of the taxes received to their destination.[70]

The taxes in the fourth century were paid to the treasurer of the province (*χρυσώνης*), or delivered directly to Alexandria.[71] In the sixth century the same practice was followed. The taxes of the villages were paid to the pagarchs or to the treasurer of the province. In Upper Egypt there is a reference to the payments of the arcaria and largitionalia to the great bank which is probably the provincial treasury.[72]

The function of the *ἀπαιτηταὶ λιτούργων ἤτοι φυλάκων* at Aphrodito is unknown. Apparently they applied voluntarily for some contractual obligation and the office was not a liturgy.[73] The *ἀργυροπράτης* in the Victor correspondence may be the equivalent of the *τραπεζίτης* on Apion's estate who seems to be nothing more than treasurer of the household.[74] The zygostates and logistes of Cynopolis may act as municipal treasurer.[75]

The liturgies in connection with irrigation, farming of public lands and transportation have been discussed in the chapters dealing with these subjects. The police duties were for the most part liturgical in the fourth century.[76] The military detachments stationed in various nomes may have served as a local police, but the guarding of fields and the water supply was largely the function of the villages concerned, and these tasks seem to remain as local liturgies throughout the period.[77]

[70] Chr. 43; P.O. 1414, 1844.

[71] See note 67; P. Leipz. 102. In P. Würz. 15 (A. D. 341) the chrysones was apparently a collector who delivered his receipts to the *ἐπιμελητὴς χρυσοῦ*. Cf. P. Thead. 33.

[72] P.O. 144; P. Cairo 67033-9; P. Flor. 377.

[73] P. Lond. 1661 (A. D. 563). See also P. Lond. 1660. The latter is probably the contract of an agent to pay the taxes of his master.

[74] P.O. 1844.

[75] P.O. 2028.

[76] Supervision of police duties seems to have been shared between the irenarch and nyctostrategus in the fourth century. The riparius also seems to have had police duties. The irenarch, sometimes known as *ἐπιστάτης* or *ἐπόπτης τῆς εἰρήνης*, is not common in the papyri and his sphere of activity was the village, pagus, or nome. (P. Lond. 1647-9). A constitution of A. D. 409 (C. Th. XII. 14. 1) abolished the office but evidently this did not apply to Egypt (SPP. xx. 118, A. D. 421). The *ἐπόπτης* seems to have been active about the middle of the fourth century (P.O. 991, 1559; P. Rend. Harr. 65). The riparius seems to have had general oversight of the pagus or nome (P. Cairo Pr. 2-3, A. D. 362; P. Lond. 1648-9, A. D. 373), and the liturgy was burdensome (P.O. 904). Assistants in preserving the peace are the *ἀρχέφοδος* (P.O. 1193; BGU. 909), *ἐφοδευταί* (P.O. 1033), *ληστοπιασταί* (P.O. 877; P. Cairo Pr. 6; SB. 2267), *λιτουργοί* (P. Leipz. 56), and various *φρουροί* and *φύλακες* who may be paid servants. See Oertel, op. cit. *s. v.*

[77] P. Cairo 67001. The slight allowance of food and wine did not save this from its liturgical character. The field guards were organized into decania (P. Cairo 67328) and apparently the head man ranked above the comarch in the hierarchy of the village *κοινόν* (P.O. 1835). The field guards received pay from estates (P.O. 1913).

In the sixth century the riparius at Oxyrhynchus seems to be a liturgy imposed upon estates in a system of rotation covering a cycle of 65 years.[78] At Aphrodito the village κοινόν nominated Apollos as riparius of the village, and apparently the office was liturgical, if we may judge from the letter of appointment sent by the governor.[79] However, a salary was provided in a statement of village accounts which may be later in date.[80] The tribune of the peace at Antaeopolis was evidently a member of the bureaucracy and received a salary.[81] Guards of towers and prisons also received a small pittance.[82]

The munera sordida (λειτουργίαι σωματικαί) are less known. The most important were the tasks of maintaining dykes and canals in the irrigation system, the farming of public land, and minor duties involving manual labor in transportation, work in the mines and the like.

After the classification of crown land ended, the forced cultivation was limited to abandoned or ownerless land. According to a constitution of A. D. 415 the class of citizens called homologi could be assigned to the cultivation of abandoned fields, but there is no reference to the homologi in the papyri.[83] The praepositus pagi was empowered to compel unwilling tenants to their duties, but it is not clear whether this was some public service or the ordinary duties of tenants on their leasehold.[84]

Criminals were sent to the mines, but workmen were requisitioned from villages as a liturgy in the early part of the fourth century. The practice of commuting this liturgy by a tax on land seems to have become general.[85]

Alexandria apparently had the privilege of requisitioning men for work in bakeries and public baths. The overseer of the Augusteum provided by Oxyrhynchus was probably a higher type of liturgy.[86] The guilds of Alexandria were apparently charged with the task of

[78] P.O. 2039.

[79] P. Cairo 67281.

[80] P. Cairo 67054. A payment of 40 solidi ὑπὲρ ῥιπαρίας in P.O. 2032 seems to indicate more than one member of the office.

[81] P. Cairo 67054, 67058; P. Flor. 297. The amount contributed was slight but other villages of the nome may have also added their quota.

[82] P.O. 1919. Cf. P.O. 2024 φυλλάτῃ τῶν πυργῶν.

[83] An appeal from forced cultivation of crown land because of age is partially preserved in P. Lond. 1827. The homologi are mentioned in C. Th. XI. 24. 6.

[84] CPR. 233 (A. D. 314) = Chr. 42. Strike (?) of bastagarii, SPP. xx. 82.

[85] C. J. ix. 47. 26 (A. D. 529); SB. 2267 (SPP. xx. 76), A. D. 300; P. Flor. 3 (A. D. 301); P. Thead. 34 (324), 35; SB. 5615 (A. D. 324); P. Amh. 140 (A. D. 340); P.O. 1905. The rhabduchus escorting camels or donkeys to the mines was paid a wage. See Wages.

[86] PSI. 162 (A. D. 286); PSI. 873 (A. D. 299); P. Thead. 34 (A. D. 324), 36 (A. D. 327); P.O. 895 (A. D. 305); 1116 (A. D. 363).

cleaning the aqueducts furnishing the city with water until the duty was taken over by the state.[87] Theadelphia provided men and donkeys for some temple service at Memphis.[88] The same village provided workmen for the military camp at Babylo. The ἀγγαρεωτής seems to be a manual liturgy and apparently not connected with the angary of the postal service.[89] In the sixth century the evidence for compulsory labor is slight. A group of masons were brought from Tampeti to Ibion and left without completing their task.[90] The comarch was ordered to take security that they would finish the job, but this was not necessarily forced labor. Similarly the sureties for the appearance and remaining of individuals need not imply that the person was the incumbent of a liturgy.[91]

The κεφαλαιωτής served as president of a guild and apparently was head of a group of villagers (δεκανία) assigned for some particular liturgy or even to pay some particular assessment.[92] The head men of the guilds at Aphrodito apparently take the lead in protesting the exactions of the pagarch of Antaeopolis.[93]

In the sixth century the information about liturgies is scanty and the growth of the bureaucracy is apparent in the accounts of Aphrodito and Antaeopolis. Except for some of the munera sordida it would seem that the bureaucracy had absorbed most of the liturgies of village and pagarchy. In fact it is extremely difficult to distinguish between liturgist and bureaucrat. That there was a vast increase in the latter is beyond doubt a necessary corollary of the subdivision of Egypt into separate provinces and the creation of a military command independent of the civil authority.

[87] C. Th. xiv. 27. 2 (A. D. 436).

[88] P. Thead. 34.

[89] PSI. 200; P. Iand. 24.

[90] P.O. 156.

[91] P. Flor. 34, 287-8; P. Würz. 16; P.O. 135; P. Cairo 67094. See Preisigke *s. v.* μονή.

[92] P. Thead. 22-3. In the latter the κεφαλαιωτής is identified with the capitonarius (capitularius). P. Leipz. 48-53; O. Askren 86-7; O. Mich. 266-9; 850-1; 937, etc. P.O. 1512, 1626 (decadarch at Heracleopolis).

[93] P. Cairo 67283. Oertel, op. cit. 225. Headman of village cf. P. Cairo Pr. 6. See C. Th. xi. 24. 6.

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Economic studies prior to the publication of the source material mentioned above have been in large measure antiquated. The valuable monograph of Mme Rouillard, L'administration civile de l'Égypte byzantine (Paris, 1928), cites important studies prior to 1928. This is supplemented by Tenney Frank's Economic Survey Vol. II (1936) which includes many economic studies which also deal in part with the Byzantine period. We add some of the more significant works of recent years which deal in whole or in part with this period.

Italy has made some noteworthy contributions to economic studies. Among these are:

Montevecchi, Ricerche di sociologia nei documenti dell' Egitto greco-romano, Aegyptus xv (1935), 67; xvi (1936), 3; xvii (1939), 11; xxi (1941), 93.

Antonini, Le chiese cristiane nell'Egitto, ibid. xx (1940), 129.

Bandi, I conti privati nei papiri, ibid. xvii (1937), 349.

Barison, Ricerche sui monasteri, ibid. xviii (1939). 29.

Zambini, Διδασκαλικαί, ibid. xv (1935) 3.

In America Segrè has continued his economic studies and the following may be cited:

Inflation and its Implication in Early Byzantine Times, Byzantium xv (1941), 249.

The Annona Civica and the Annona Militaris, ibid. xvi (1943), 349.

Some Traits of Monetary Inflation in Antiquity and the Middle Ages, Seminar i (1943), 20.

Fiscal Reform of Diocletian, Traditio, iii (1945), 101ff.

In Germany the chief interest in economic problems has been taken by the Munich school in the valuable series Münchner Beiträge. Although Schnebel's Landwirtschaft im Hellenistischen Aegypten deals primarily with the Hellenistic period, the technique of agriculture has not changed materially until the introduction of perennial irrigation and of new crops in comparatively recent times. Schnebel has published a study of the agricultural ledger in P. Baden 95 (J.E.A. x [1924], 207). Van Bolla, Untersuchungen zur Tiermiete und Viehpacht im Altertum, contributes some material from the Byzantine period.

From France the work of Piganiol, La capitation de Diocletién (Rev. Hist. clxxvi (1935), 1ff.) is important for Byzantine taxation. The late Gunnar Mickwitz brought distinction to his native land for his economic studies. Noteworthy are Geld und Wirtschaft, die Systeme des römischen Silbergeldes im IV Jhdt. n. Chr. and Ein Goldwertindex der römisch-byzantinischen Zeit (Aegyptus, xiii (1935), 95ff.). Valuable bibliographies are published in the Journal of Egyptian Archaeology by English scholars.

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